UTM Operator Manual

Version: **4.0**

Table of Contents

1.0 Introduction

1.1 Overview

Welcome to the field of Unmanned Traffic Management (UTM). A UTM System consists of a set of services that are designed to facilitate the use of Unmanned Aerial Vehicles (UAV), autonomous or remotely piloted, in segregated or integrated airspace.

UTM is a mobile and web-based platform encompassing a host of tools and services that provide capabilities designed to assist end-users with the safe and efficient management of unmanned traffic in a defined airspace. ***Two primary UTM users are catered for, UTM Authorities and Drone Operators.*** The UTM provides these users with a set of services that enable them to safely and efficiently manage their operations.

Drone Operators are provided services allowing them to register themselves as drone operators, register their drones, apply for flight requests, receive situational awareness, prior to and during their flight, and be able to access their flight data post flight.

This user manual specifically focuses on guiding the Drone Operators on how to effectively use the system via both the web and mobile interface. It provides instructions on how to access the services and many additional features and functions available for use.

1.2 Purpose of the Manual

The purpose of the user manual is to provide Drone Operators with instructions and step by step guidance on how to use the system and implement the operator workflows along with more detailed information on the system's many detailed features and functions as a reference guide.

Note: Updates and changes to Manual will be ongoing based on user/stakeholder feedback and user's new requirements over time.

1.3 Prerequisites

It is assumed that the following steps have been completed prior to the use of this manual:

1. The UTM system has been deployed in an appropriate Staging Environment suitable for training UTM Operators.
2. Drone Operators should have a valid UAE PASS Account before signing up to UTM.
3. A suitable UTM Training Lab environment exists with adequately configured laptop/desktop computing facilities.
4. The UTM Training Lab has an adequate internet connection to facilitate connection with the UTM Staging Environment.
5. Drone Operators have access to a suitable outdoor location that has cellular data connectivity, and has been authorised by the appropriate authorities to conduct live drone flights.
6. Drone Operators have access to third party approved retro-fitted trackers for live telemetry as per the RemoteID standard.

If any one of the above pre-requisites is not available - please contact UTM Support (**Section 8.0**) for assistance (M-F, 9 am to 5 pm, excluding public holidays).

2.0 UTM Concepts, Role Based Access & Workflows

In order to understand a UTM system's capabilities and role within a larger framework of aviation management systems, it is important to be conversant with basic aviation and geographical terminology - as these will be used pervasively throughout this manual. The purpose of this chapter is to provide the user with an introduction to many of these terms and concepts, which often have different meanings from how they are used in everyday parlance.

No prior experience or knowledge is assumed other than that of a basic understanding of the English language (as this is the internationally accepted language of aviation) and how to perform basic (high-school or secondary school level) arithmetic and algebraic mathematical operations. Where possible, additional online references are provided in the appendix, if the user wishes to delve further into the subject matter.

However, for the purposes of using UTM - the material in this document is sufficient for its initial set up and use. We begin with a discussion of fundamental concepts of airspace, position, height/altitude & time before moving on to specific UTM concepts such as Role Based Access (RBA) and ending with UTM specific Workflow and Concepts.

2.1 Airspace

Fundamentally, a UTM system's primary purpose is to support the safe and efficient use of **Airspace.** Airspace can be defined as a volume of space having an arbitrary shape, extending from a lower altitude limit (may be from the ground, but not necessarily so) to an upper altitude limit and is defined and under the control of a sovereign nation which assumes responsibility for granting or denying access to the airspace as per its own rules and regulations. Airspaces can be further grouped according to their **Class.** Each Airspace Class, is defined as per flight rules, and interactions between manned aircraft and Air Traffic Control (ATC).

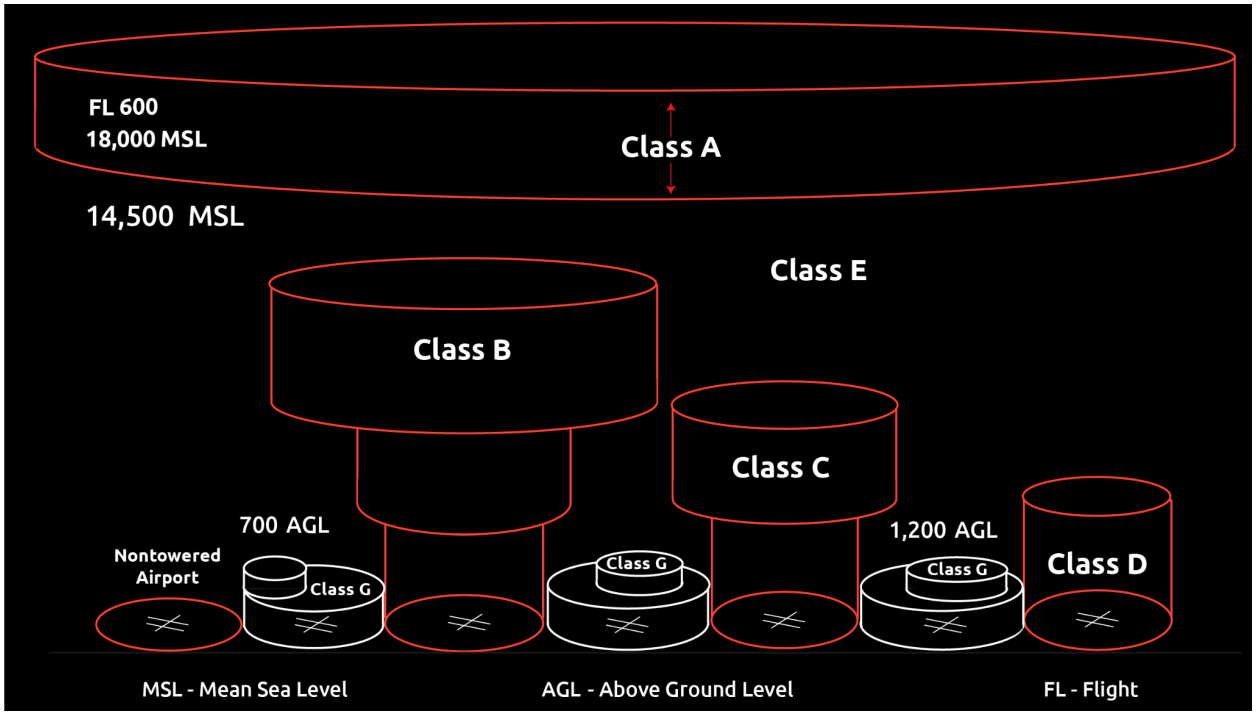


Figure 2-1(a): Airspace Class Concept

Airspace Classes are defined primarily by the national aviation regulator and are published and disseminated on an **Aeronautical Information Regulation And Control (AIRAC)** cycle which is usually every 28 days. The AIRAC cycle is followed to provide a uniform schedule of Airspace updates that can be followed by Airspace users, ensuring that they have the most up to date information available. A schedule

of AIRAC dates can be found at the following link maintained by the **International Civil Aviation Organization (ICAO)**:

https://www.icao.int/airnavigation/information-management/Pages/AIRAC.aspx

2023	*2024*	*2025*	*2026*	*2027*	*2028*	*2029*
2023-01-26	2024-01-25	2025-01-23	2026-01-22	2027-01-21	2028-01-20	2029-01-18
2023-02-23	2024-02-22	2025-02-20	2026-02-19	2027-02-18	2028-02-17	2029-02-15
2023-03-23	2024-03-21	2025-03-20	2026-03-19	2027-03-18	2028-03-16	2029-03-15
2023-04-20	2024-04-18	2025-04-17	2026-04-16	2027-04-15	2028-04-13	2029-04-12
2023-05-18	2024-05-16	2025-05-15	2026-05-14	2027-05-13	2028-05-11	2029-05-10
2023-06-15	2024-06-13	2025-06-12	2026-06-11	2027-06-10	2028-06-08	2029-06-07
2023-07-13	2024-07-11	2025-07-10	2026-07-09	2027-07-08	2028-07-06	2029-07-05
2023-08-10	2024-08-08	2025-08-07	2026-08-06	2027-08-05	2028-08-03	2029-08-02
2023-09-07	2024-09-05	2025-09-04	2026-09-03	2027-09-02	2028-08-31	2029-08-30
2023-10-05	2024-10-03	2025-10-02	2026-10-01	2027-09-30	2028-09-28	2029-09-27
2023-11-02	2024-10-31	2025-10-30	2026-10-29	2027-10-28	2028-10-26	2029-10-25
2023-11-30	2024-11-28	2025-11-27	2026-11-26	2027-11-25	2028-11-23	2029-11-22
2023-12-28	2024-12-26	2025-12-25	2026-12-24	2027-12-23	2028-12-21	2029-12-20

Figure 2-1(b): Airspace Class Concept

Within an airspace class, further classification is possible by defining an **Airspace Area** which is an airspace of defined dimensions above the land areas or territorial waters of the State:

1. **Prohibited Area** - within which the flight of aircraft is prohibited.
2. **Danger Area** - within which activities dangerous to the flight of aircraft may exist at specified times.
3. **Restricted Area** - within which the flight of aircraft is restricted in accordance with specific conditions.

2.2 Lateral Position

Another important concept that is core to a UTM's function is the ability to define an object's position in space. To accurately identify this location at any point of time, at

least three coordinates are required. AstraUTM uses **Latitude** and **Longitude** to plot a position on the Earth's surface and **Altitude** or **Height** to determine the object's vertical location above some fixed reference point.

Understanding an object's location in all three dimensions is essential to any UTM system that needs to track not only multiple objects but their positions relative to one another to ensure safety and security.

Latitude

Latitude is the angular distance North or South of the Equator and is defined in terms of degrees (360 degrees in a complete circle), minutes (60 minutes in each degree) and seconds (60 seconds in each minute). Latitude is reported in decimal form followed by a letter "N"or "S" indicating whether the Latitude Line is North or South of the equator respectively. The numeric value will always be between 0° and 90°.

Example:

24.237867N

24.237867° North of the Equator

This is equivalent to:

24 degrees
14 minutes
16.32 seconds North
Which can also be written as: **24° 14' 16.32" N**

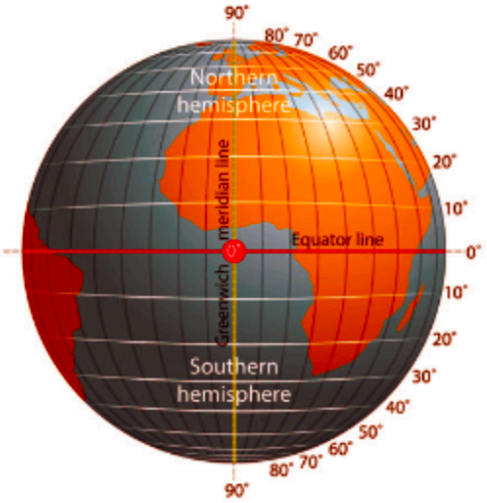


Figure 2-2(a): Latitude Lines

Longitude

Longitude is the angular distance East or West of the 0° Meridian (a standard line of longitude arbitrarily defined as the 0° Longitude running from the North pole to the

South Pole through the locale of Greenwich in London - sometimes referred to as the Greenwich Meridian). Longitude is reported in decimal form followed by a letter “E”or “W” indicating whether the Longitude Line is East or West of the 0° Meridian respectively. The numeric value will always be between 0° and 180°.

Example:

54.786521E

54.786521° East of the 0° Meridian

This is equivalent to:

54°
47 minutes and
11.48 seconds East
Which can also be written as: **54° 47’ 11.48” E**

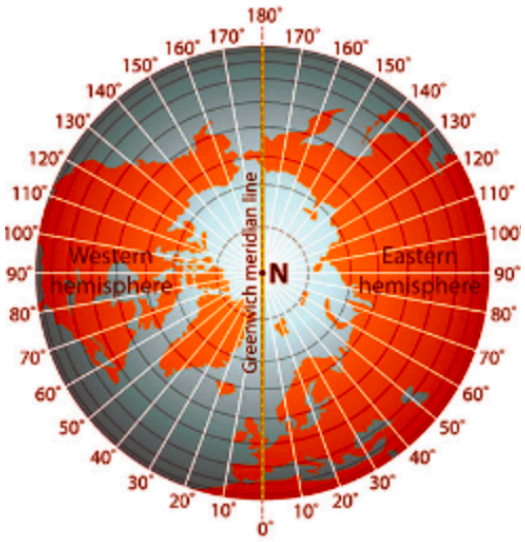


Figure 2-2(b): Longitude Lines

As an example of locating an exact location, if both these coordinates were taken, they would be defining the following location:

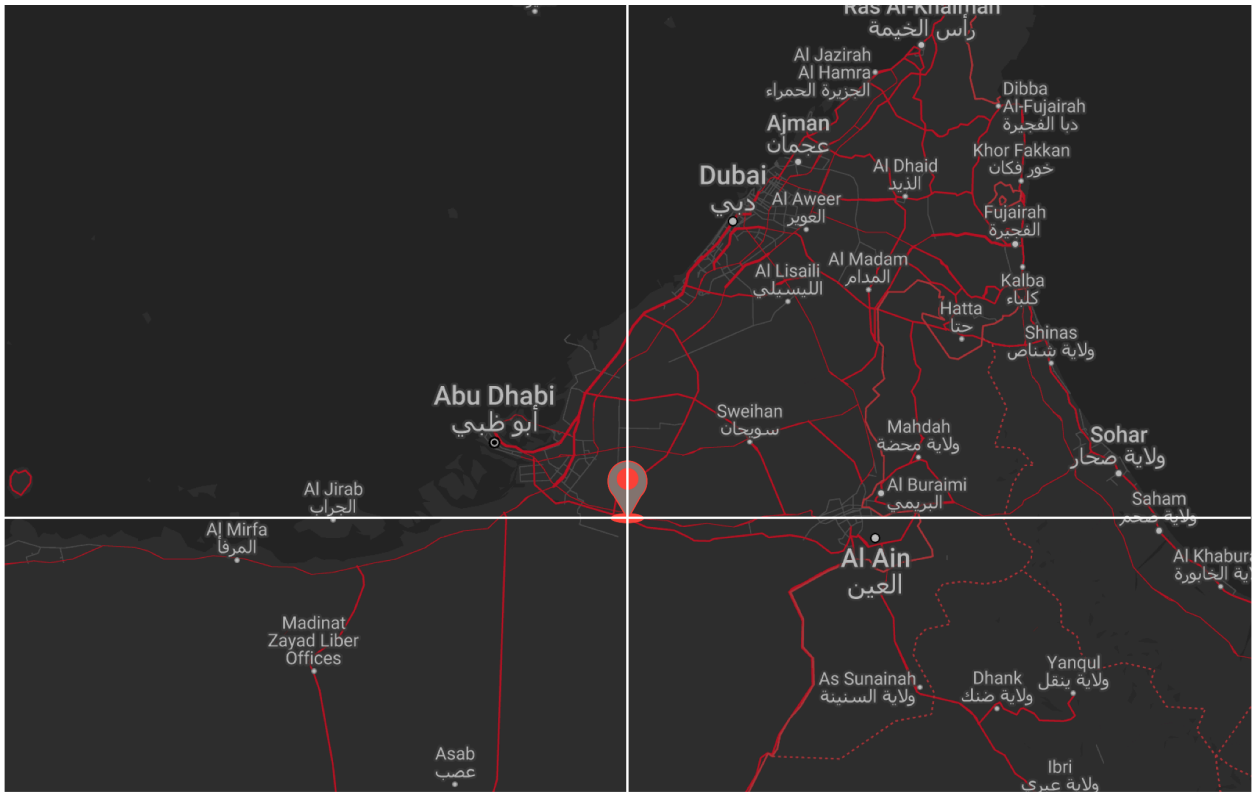


Figure 2-2(c): Example of position determination using Longitude and Latitude Coordinates (24.237867N, 54.786521E) or (24° 14’ 16.32” N 54° 47’ 11.48” E)

2.3 Vertical Position

Measuring an object's vertical separation involves establishing a common reference level known as a **datum.** Datum refers to a surface somewhat arbitrarily defined as zero elevation. Several datums exist and they all provide some indication of the vertical position of an object. It is important for UTM users to know the differences between these and to use the same reference datum when comparing the vertical position of different objects.

For the purposes of illustrating the different ways in which vertical distances can be reported, we will use the figure 2-3(a) below:

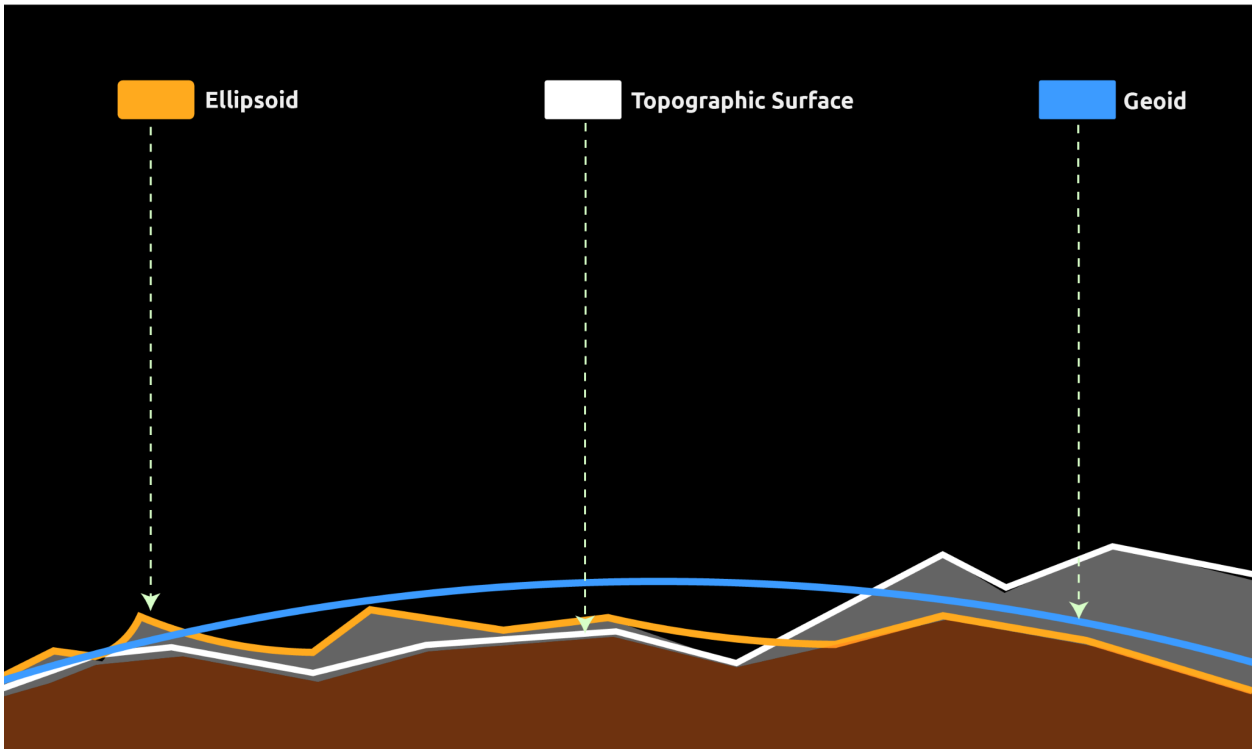


Figure 2–3(a): Vertical Datums

The **Topographic Surface** represented by the blue line above, actually follows the Earth's visible surface. Vertical distances measured from this line are known as the **Height** and are usually reported in feet or metres. This surface can change from over short time frames due to weather conditions altering the surface (e.g. shifting sand dunes).

A **Geoid** is an "average" level of the sea, defined by the Earth's gravity field, and does not take into account winds, currents or tides. Vertical distances that are measured in reference to this datum are reported as **Altitude above mean seal level** (**AMSL**) and are measured in feet or metres. This surface can shift more slowly over time as there are changes in the Earth's gravitational field that causes the "average" level of the Sea to change. In aviation this is referred to as **True Altitude**.

An **Ellipsoid**, is a mathematical surface that is a "best fit" for the geoid. This is an imaginary surface against which vertical distances are measured. Different ellipsoids can be defined for different purposes - but the most common one in use for mapping purposes is the **World Geodetic System 1984 (WGS84)** ellipsoid. As this is a mathematically constructed surface - it is not subject to change with time. The satellite based Global Positioning System (GPS) uses this datum, against which to report altitude.

Another datum is referenced to the **pressure level** of 29.92 in Hg (mercury) or 1013.25 mm Hg. This is an imaginary surface everywhere on which the measured atmospheric pressure would be at this value. Vertical distances measured against this datum is reported as **Pressure Altitude** and is reported in feet or metres.

In aviation, above 18,000 feet AMSL, vertical distances are reported as **Flight Levels (FL).** These are typically reported in feet only by omitting the trailing two zeros in the altitude and are only reported in 100's of feet:

Examples:

1. FL181 is 18,100 feet AMSL
2. FL200 is 20,000 feet AMSL
3. FL659 is 65,900 feet AMSL

It must be remembered that FL's are only used above 18,000 feet AMSL.

The figure below illustrates how these different datums may all result in different reporting vertical elevations for the same object.

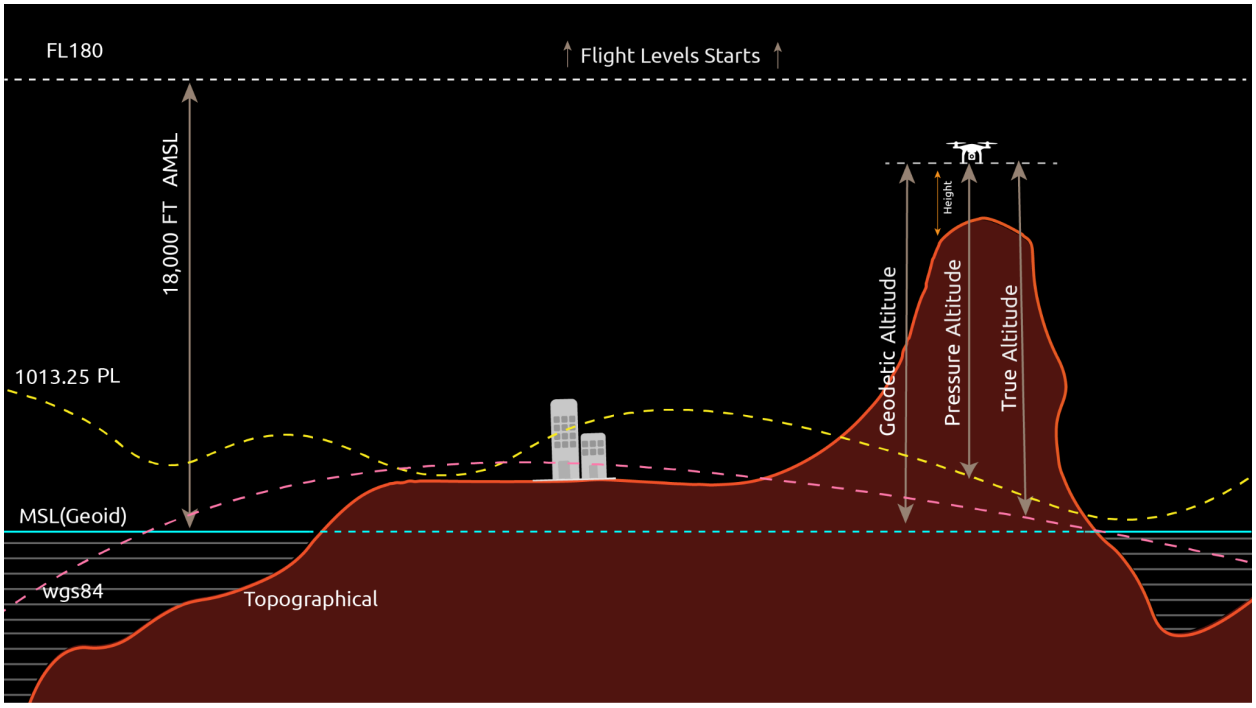


Figure 2-3(b): Vertical Datums

It is important that the UTM uses a Common Altitude Reference System (CARS) to ensure that all altitudes/heights are being measured against a common datum and that relative vertical separations can be accurately measured.

By combining the Latitude, Longitude and Altitude/Height coordinates, the unique position in space of an object can be determined, combining this with a time coordinate allows us to fix the position in space and time.

2.4 Time

Along with an object's lateral and vertical position coordinates, it is important to also know the point in time at which these coordinates are valid - as the object's position may constantly fluctuate. For this purpose a global standard has been developed and adopted by all countries who partake in aviation activities and allows greater coordination of aerial activities by providing a common time reference. This system is known as **Coordinated Universal Time (UTC)** and is also sometimes referenced as **Zulu Time.** This is the time at the 0 degrees longitude.

Within the UTC system time is divided into days, hours, minutes, and seconds. Days are identified using the Gregorian calendar, but Julian day numbers can also be used. Each day contains 24 hours and each hour contains 60 minutes. The number of seconds in a minute is usually 60, but with an occasional leap second, it may be 61 or 59 instead.

Time Zones are defined relative to this longitude, decreasing in hourly and half hourly increments going west and increasing going east. An approximate 15 degrees change in longitude would result in a change in time by 1 hour, however in defining the time zones, national boundaries take precedent and these are more prevalently used in defining where a time zone starts and ends rather than the strict 15 degree shift in longitude. A map below illustrates this globally. As can be seen the UAE falls in the time zone of UTC+4 hours. It is important to note that UTC does not adjust or change for summertime adjustments that routinely set clocks forward (in summer) and backwards (in autumn) to help provide for greater daylight hours in many countries in northern and southern latitudes. UTC is a standard time reference that does not undergo any such seasonal adjustments. Times locally are reported as **Coordinated Local Time (LTC)** and have taken into account the adjustment from UTC. All times are reported using the 24-hour clock notation and this removes any ambiguity regarding whether it is a.m. or p.m that is being referred to.

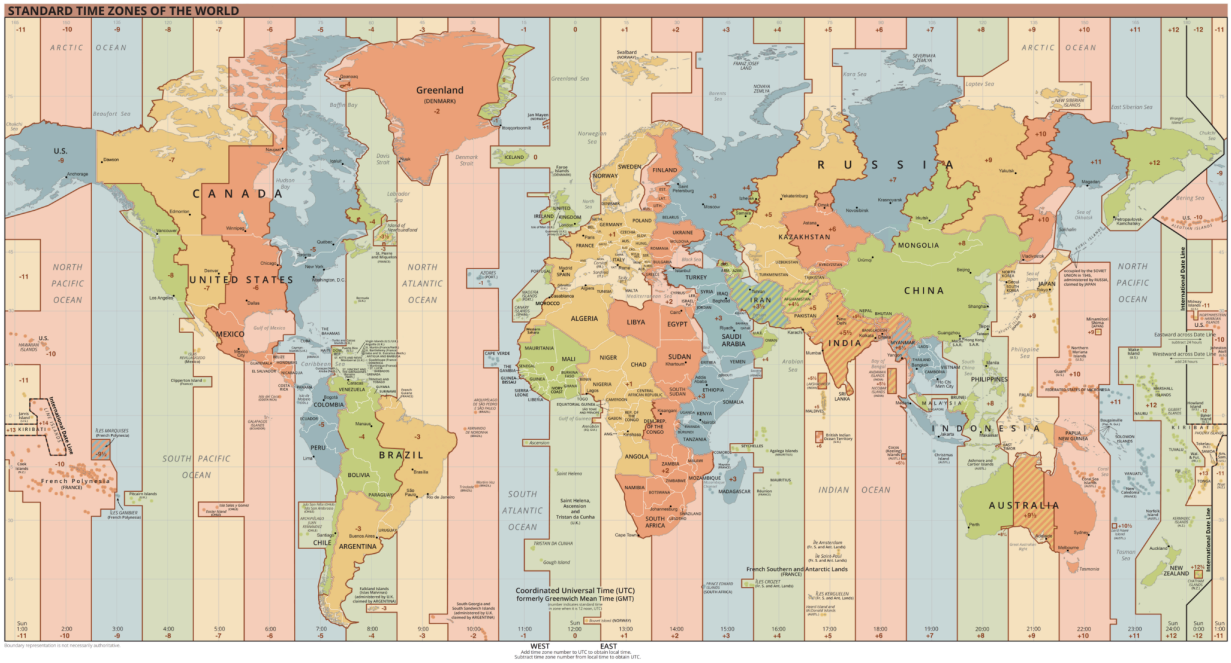


Figure 2-4(a): Global Time Zones

Examples:

If it is Dec 12th 2023 13:41 UTC and we wish to know the time in Fujairah, we first determine which Time Zone Fujairah falls in. From the map below, it can be seen that Fujairah is in the UAE which is in the Time Zone UTC+4. Therefore the time in Fujairah will be:

Dec 12th 2023 13:41 + 4 hours = **Dec 12th 2023 17:41 LTC**

If it is Mar 17th 2023 01:41 LTC in Abu Dhabi and we wish to know the time in Manama, Bahrain, we first convert LTC to UTC (the time at the 0 degree longitude), then determine the Time Zone of Manama, Bahrain and convert from UTC to the final LTC. Therefore, in Abu Dhabi 01:41 LTC is in the the UTC+4 Time Zone and UTC would be:

Mar 17th (01:41 - 4) hours which is 21:41 ***the previous day***

= Mar 16th 2023 21:41 UTC

We now convert this UTC to LTC for Manama, Bahrain. We notice from the map above that Manama is located in the Time Zone UTC + 3 hours. Therefore the time in Manama would be:

Mar 16th 2023 21:41 + 3 hours

= Mar 17th 2023 00:41 LTC

These examples are designed to illustrate that not only is it important to consider the time, but the date as well, as UTC to LTC conversions and vice versa may result in a date change as well.

2.5 Operation Type

With respect to remotely and/or autonomously piloted vehicles, a distinction is made with regard to the visual range within which the flight is conducted. This range is determined by the ability of the pilot or operator to visually identify the vehicle without any artificial aids (with the exception of prescription spectacles or contact lenses). Artificial aids such as binoculars, telescopes etc. are not permitted as they may obscure the pilot's peripheral vision. Three categories of Operation Types are identified:

1. Visual Line of Sight (VLOS)
2. Extended Visual Line of Sight (EVLOS)
3. Beyond Visual Line of Sight (BVLOS)

Visual Line of Sight (VLOS) Operations

VLOS operations are conducted with the pilot or operator of the vehicle maintaining complete visual contact with the vehicle at all times during the operation. The pilot must be able to clearly see the vehicle and the surrounding airspace at all times that the vehicle is airborne. This implies that they are capable of maintaining a direct line of sight connection with the vehicle at all times, and that the vehicle is not partially or fully obscured by any weather phenomenon (e.g. fog, precipitation, dust storms), terrain (e.g. hills, mountains, trees) or artificial obstacles (e.g. buildings, towers). VLOS operations allow the pilot to monitor the vehicle's flight path and allow the pilot to make manoeuvres to avoid potential collisions.

Extended Visual Line of Sight (EVLOS) Operations

EVLOS operations allow the flight of a vehicle beyond the visual sight of the pilot by using trained observers to keep the aircraft within their view, collision avoidance is still achieved through the unaided (i.e. use of artificial aids to enhance vision, other than spectacles and contact lenses are not permitted) visual observation of a human.

Beyond Visual Line of Sight (BVLOS) Operations

BVLOS operations are defined as the operation of a vehicle beyond a distance where the pilot is able to respond to or avoid other airspace users by direct visual means. In this type of operation, the vehicle is flown completely out of the visual sight of any human.

2.6 Role Based Access (RBA) in UTM

UTM employs a robust Role Based Access (RBA) to the system that enables a degree of flexibility in configuring access to the various features and functionalities available to users of the system. UTM consists of a set of Services. Within each Service are a set of features or functionalities. Access to these features (known as ***Permissions***) and what an Operator can do within this feature (known as ***Privileges***) is managed by the Super Administrator of the system and is at the heart of UTM's RBA.

In order to understand how Operators can leverage the maximum advantage of such a system - it is important to understand that there are various ***User Types, Roles and Profiles*** *in UTM .*

This manual focuses on explaining the UTM workflows for the Operator user type of which there are two types: that of the **Organisation Manager Role** and that of the **Pilot Role (Recreational or Commercial).**

Operator User Roles

Organisation Manager Role

Often, legal entities other than individuals (e.g hobbyists or recreational drone pilots), wish to use drones for commercial or official purposes. For this to occur an Organisation must first be successfully registered with UTM by the Organisation Manager assigned to manage the drones and pilots that the organisation is legally responsible for. The role of Organisation Manager is designated either to a single user or multiple users within the organisation and has the responsibility for maintaining the organisation's registry of pilots, drones, flight requests and coordination with Authorities and Approvers.

Pilot Role

The UTM system offers a smooth navigation experience to drone pilots through a user-friendly interface granting pilots access to vital information necessary for

conducting drone operations. Pilots acting in their own individual capacity (and not on behalf of another legal entity), are known as **Recreational Pilots** and can directly register themselves and their drones with UTM, as well as create and submit flight plan requests. However, if a Pilot wishes to fly on behalf of a legal entity (other than him/herself) the Pilot, known as a **Commercial Pilot**, cannot register directly with UTM and must be registered by that entity's Organisational Manager.

User Profiles

For each of the Operator Roles mentioned above, ***User Profiles*** may be defined as per the relevant permissions and privileges granted by the system's Super Administrator.

2.7 UTM Operator Workflows

The following section outlines a typical use case within UTM for an individual pilot (i.e a Recreational drone operator) wishing to conduct an operation at a particular time in a particular location. The basic operator workflow consists of the following steps:

1. Pilot Registers and makes payment for Self & Drones
2. Pilot Applies for flight requests
3. Rules are Applied to flight requests
4. UTM System/Approver Approves flight requests
5. Pilot Conducts Flights
6. Admin Monitors Flights
7. Flights Conform to Rules
8. Flights Generates Notifications/Warnings and Alerts (Optional)
9. Admin and Pilot Communicate with each other (Optional)
10. Post Flight Report Generation

2.8 UTM Concepts

As can be seen in the above basic workflow, several concepts have been introduced that must be first understood.

UTM Rules

Rules are in their basic form, conditions that must be satisfied at all times in order for the UTM system to function coherently, efficiently and safely. However, there is wide latitude in how these rules can be established and UTM provides a flexible rules engine that can be configured and modified by the UTM in accordance with evolving standards, technology and regulations. Rules can be grouped around several broad areas of consideration:

1. **Airspace** - lateral geographical boundaries with starting and ending heights or altitudes with reference to a specific datum. What is and what is not permitted within these Airspaces would constitute one type of rule.
2. **Conformance** - these rules pertain to what conditions must be met in order to be within acceptable limits of existing national regulations that promote safety and security.
3. **Risk** - rules established to assess the likelihood of an adverse event that may occur and that may cause the damage or loss to life and/or property.
4. **Monetization** - the ability to assign monetary compensation for granting access to airspace based upon a wide range of parameters.
5. **Registry** - defining what information must be elicited from system users in order to provide a pre-defined level of service.

Flight Requests

In order for UAVs to operate safely in segregated or integrated airspace, it would be prudent to establish some form of flight authorizations (referred to here as flight requests). A *flight request* authorisation is an authorisation by an Approver (so authorised by a competent national body and created by the SA or Admin) allowing a Pilot to conduct a Drone flight at a particular location, time and under a set of well understood and accepted conditions. A flight request is applied for by a Pilot or Organisational Manager Role and can exist in a particular status:

1. **New** - Flight request has been applied for but not yet approved.
2. **Awaiting Pre-Approval -** Flight request requires approval by a higher authority.
3. **Amended** - Flight request has been approved but with modifications made by Approver and is awaiting acceptance by the Pilot and/or Organisation Manager.
4. **Approved** - Flight request has been accepted by both Approver and Pilot or Organisational Role.
5. **Rejected** - Approver has rejected the flight request.
6. **In Progress** - Flight linked to a flight request that has been Approved is currently underway.
7. **Cancelled** - Flight request has been voluntarily cancelled by the Pilot or Organisation Manager prior to the flight commencing.
8. **Completed** - Flight has been concluded by the pilot and reported as such, rendering the flight request invalid.
9. **Terminated** - Flight that was in approved status can be terminated by the Approver at any time. Also, flight requests that were In New state and not approved up until the End time, will be terminated automatically.

Flights

A ***Flight*** is defined as a UAV operation (remotely piloted or autonomous) that exceeds a predefined height above the take-off point for a predefined minimum time period and may or may not be linked to a flight request. Flights themselves can exist in a variety of states:

1. **Pending** - The Flight is associated with a flight request that has not been Approved (i.e. the flight request Status is New).
2. **Scheduled** - The Flight is associated with a valid flight request that is Approved for a future time of operation.
3. **Active** - The Flight is associated with an Approved flight request and is currently underway.
4. **Breach** - The Flight is associated with an Approved flight request but is in breach of the established conformance conditions of the flight request. Conformance Conditions of the Flight are associated with and may result in the generation of the following ***warnings and/or alerts***:
    a. *Boundary* - The Flight has breached the lateral limits of its Approved flight request.
    b. *Height* - The Flight is in operation above its prescribed maximum height limit.
    c. *Time* - The Flight is in operation before or after its Approved flight request time limit.
    d. *Proximity* - The Flight is in operation within the Admin's established minimum separation criteria from Manned or Unmanned traffic.
5. **Completed** - The Flight has been completed and the associated flight request is also completed.
6. **Paused** - The Flight has been temporarily paused under the instructions of the Admin, this is accompanied by an instruction to the Pilot and Organisation Manager to land the drone immediately. Flights may or may not resume at the discretion of the Admin.
7. **Cancelled** - The Flight has been voluntarily ceased at the discretion of the Pilot.

8. **Terminated** - The Flight has been instructed to cease operations by the Admin. The Flight will not be permitted to continue and the associated flight request also enters a Terminated Status.

Before illustrating these functions, it is important to understand the basic layout of the UTM Dashboard and how it is navigated. This has been described in the following sections for both the Mobile and Web applications and aims to familiarise operators with the UTM dashboard, its navigation, and the above typical operator workflow outlined in Section 2.7.

3.0 UTM Graphical User Interface

Before illustrating the above functions and how to execute a typical workflow, operators need to familiarise themselves with UTM's Graphical User Interface (GUI). UTM implements a highly intuitive and easy to use map based interface that allows users to rapidly navigate to the information that is most pertinent to their current state of use.

This is explained in detail in the following sections for both the Mobile and Web applications and will provide an overall understanding of the basic navigation tools and principles to facilitate a more efficient flight request creation process.

4.0 Operator Role - Mobile

Access to UTM via the Mobile App is available only to Operators. The following section outlines the UTM workflow sequence, features, and functions available for Operators using the Mobile App (see Section 5 for Web access). There are two types of Operators: the Organisation Manager and Pilot (Recreational or Commercial). Both have similar access to the system, but the Organisation Manager has additional features that enable them to register the organisation's pilots, since commercial pilots cannot register themselves, and to manage the organisation's details.

Often, legal entities other than individuals (e.g Hobbyists or Recreational drone pilots), wish to use drones for commercial or official purposes. For this to occur an Organisation Manager must be assigned to first register the legal entity or organisation with UTM. Once registration is complete, and the organisation has been approved and registration payments made, the Organisation Manager can begin to create and manage the pilots and drones that the organisation is legally responsible for. The responsibility of managing and maintaining the organisation's registries of pilots, drones and flight requests, as well as coordinating with Authorities and Approvers, is often assigned to a single user but is not a restriction - multiple users can be designated as well.

4.1 Set Up Account

1. Download the **UAE Drones App** on your smartphone from the Apple App Store or Google Play Store.

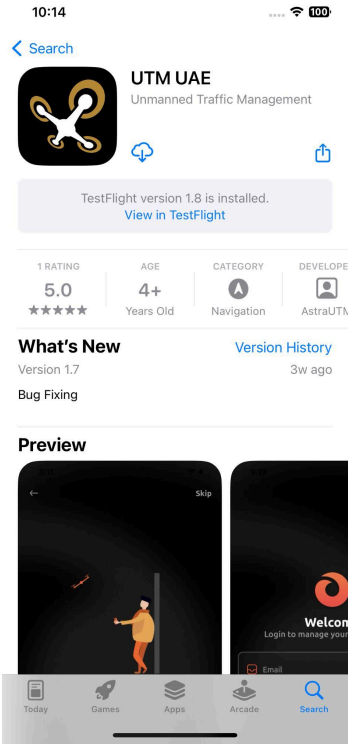


Figure 4-1: UAE Drones - App Store

Note: The latest version of the App will be available once uploaded to the App and Google Play stores.

4.2 Onboarding

1. Open the **UAE Drones App** on the mobile device.
2. Select the language for the Mobile App and tap **Next.**
3. The Mobile App provides onboarding screens of the features offered by the App as shown in Fig. 4-2(a) below.
4. Tap **Next ->** to view features available.

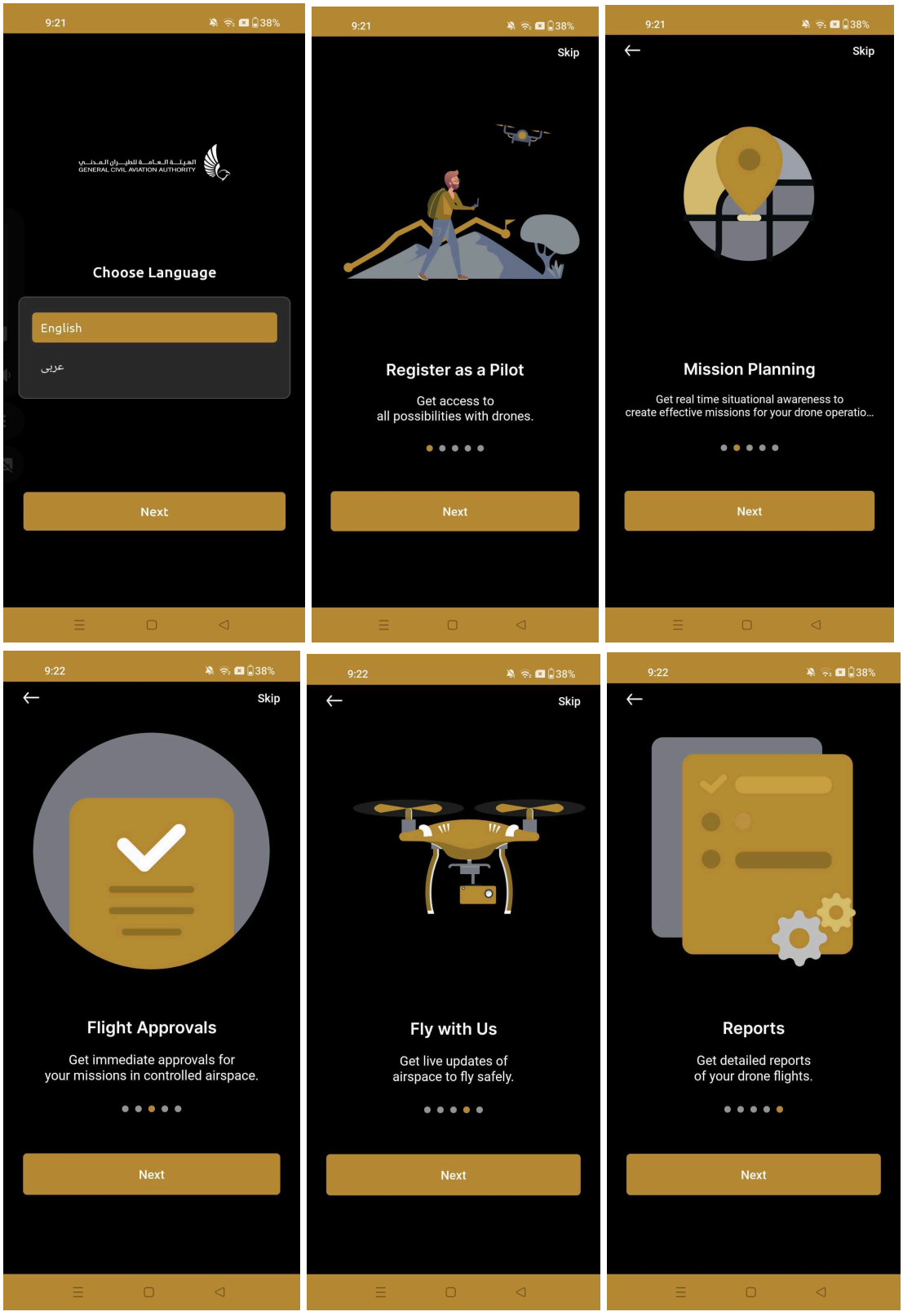


Figure 4-2(a): Pilot Onboarding Screens - II

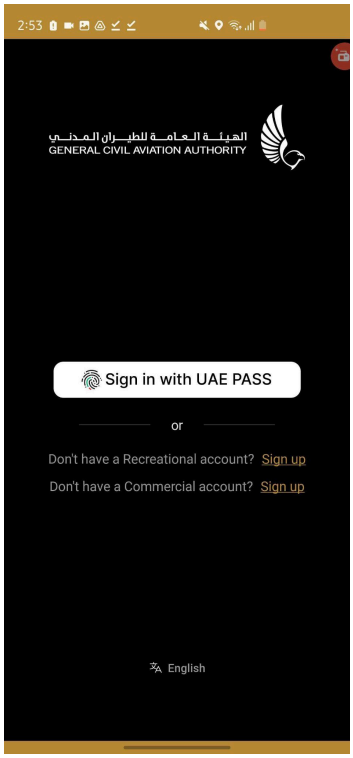


Fig 4-2(b): Welcome Screen

5. Once the OnBoarding screens are complete, the **Sign in** page for the UTM App will appear as seen above.
6. To be able to **Sign in with UAE PASS** and access UTM, operators must first have an account with UAE PASS (See Section 4.3).

4.3 Registration

All Operators must sign up and register for an account with **UAE PASS,** either on the Mobile App or Web, before they can access UTM. This section focuses on how Operators can register for an account using the Mobile App (See Section 5 for Web).

Recreational Pilots are able to directly register for an account on UTM with UAE PASS. Commercial Pilots must contact their respective Organisation Manager for account creation. The latter first requires that the Organisation be successfully registered within the system (See section 4.3.2 below).

Pilots are registered in the following three ways:

1. Pilots register themselves with UAE PASS (*Recreational only - Mobile & Web))*
2. Organisation Manager registers a Pilot (*Commercial/ Government - Mobile & Web*)
3. Admin registers a Pilot (*Web only)*)

4.3.1 Recreational

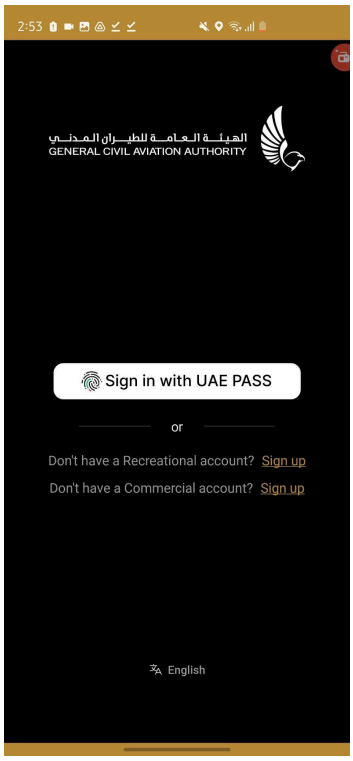


Figure 4-3(a): Registration - Recreational Pilot

1. To create a new **Recreational Account** select **Sign up.** This feature is available for recreational pilots only.

   Note: Commercial /Government pilots should contact their respective Organisation Manager for account creation which is done via the Web or Mobile Application.

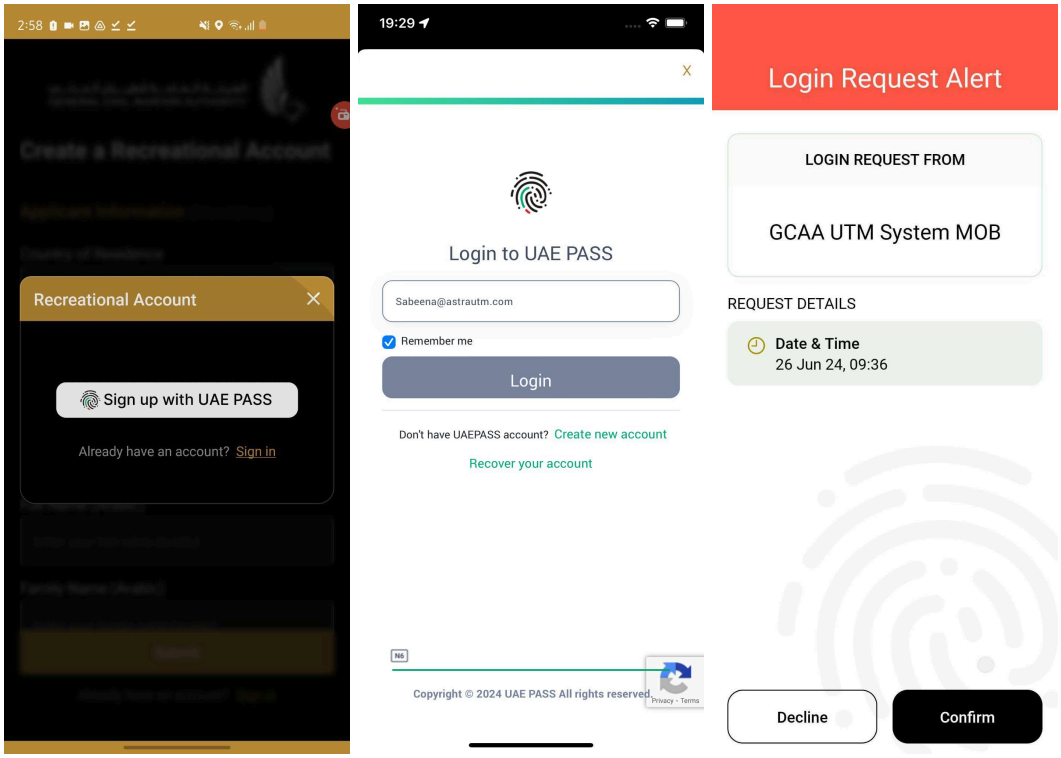
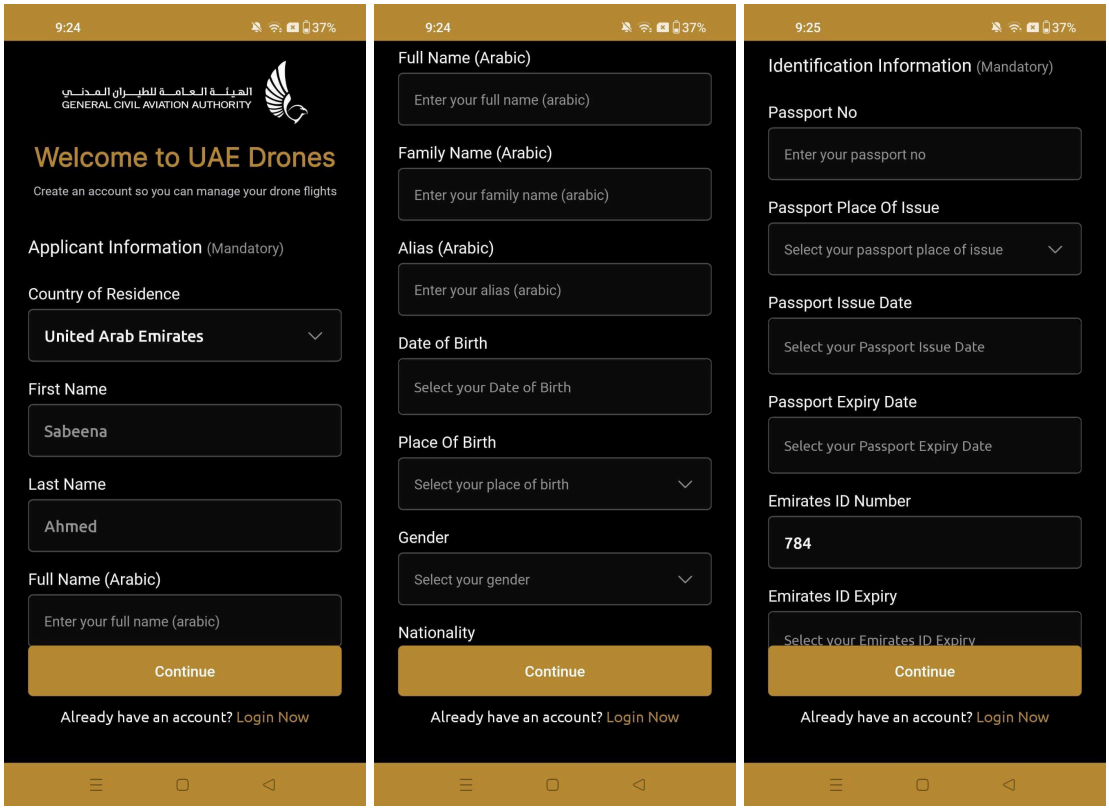


Figure 4-3(b)- Sign up with UAE PASS & Login to UAE PASS - Recreational

2. Click **Sign-up with UAE PASS.** For users who don't have a UAE PASS, a UAE PASS account must be created before registering on UTM.
3. The user will be directed to the UAE PASS App, already installed on the user's device, where the user will be prompted to confirm that the UTM App is requesting login with UAE PASS. Click **Confirm**. Once confirmed user will be directed back to UTM to complete the registration form as seen below in Fig 4-3(c).
4. If a user does not have UAE PASS App on their phone, the user must login through UAE PASS using their Emirates Id, email, or mobile number, as seen above. This will trigger an authorisation request to the device on which the UAE PASS App has been installed. Once users have been authorised by the UAE PASS App using their pre-configured PIN or fingerprint or Face ID, users will be redirected back to UTM to complete the registration form as seen below in Fig 4-3(c)).



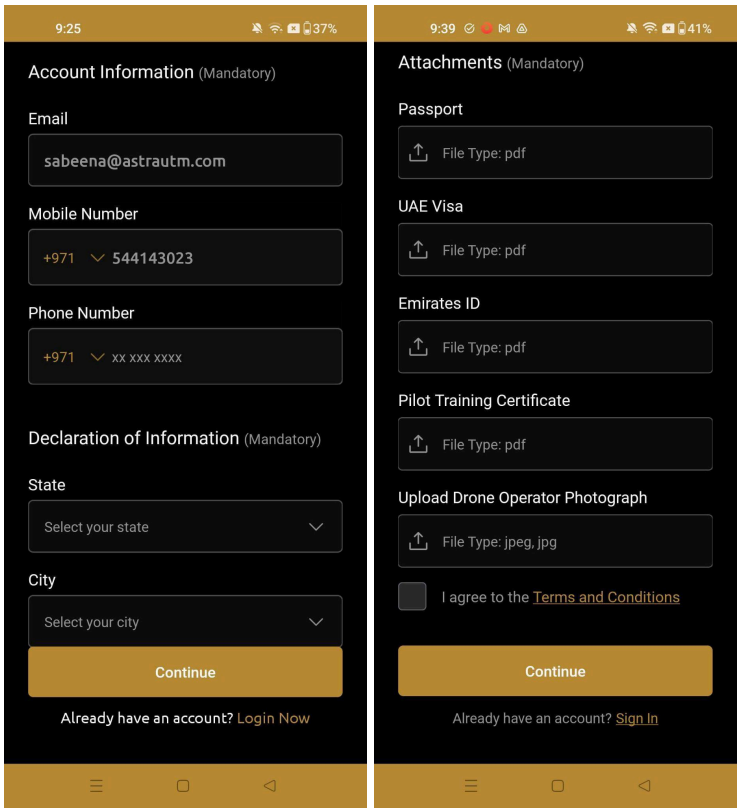


Figure 4-3(c)- Registration Forms - Recreational

5. If users have been verified by the UAE PASS portal the forms will auto populate with relevant information of the user, which includes their **Emirates ID.**
6. If the user is not verified they will not see their Emirates ID.
7. Enter the remaining information and attach any supporting documents.
8. Agree to **Terms and Conditions** then click **Continue**.
9. Upon completing the forms the system will auto-log the user into the UTM **Dashboard** as seen below.
10. Pilots are instructed to register at least one drone in order for their profile to be approved. Once user profile is approved, an email is sent requesting registration payment of 100 AED be made before user can start creating flight requests.

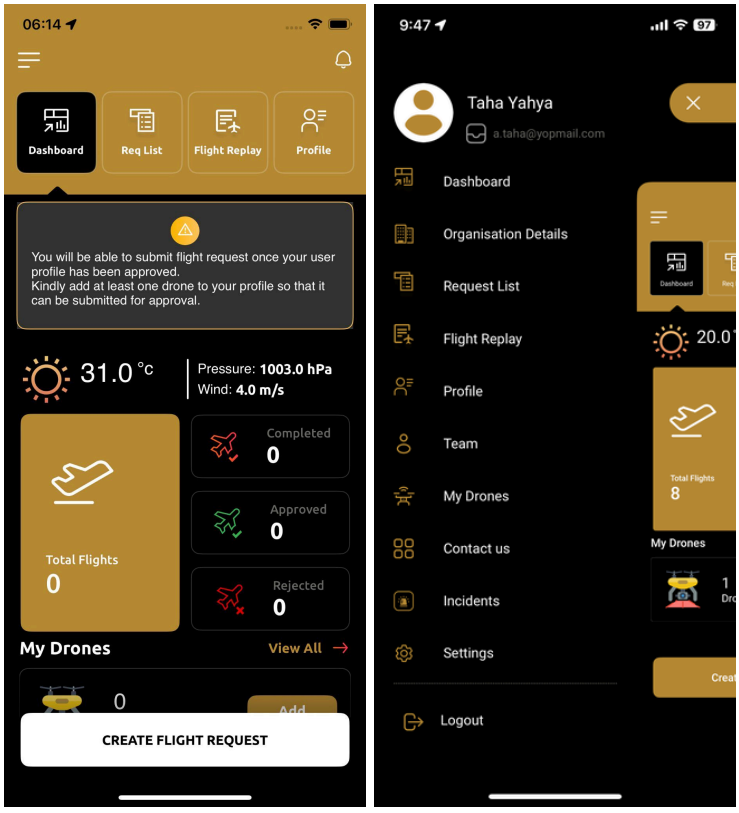


Figure 4-3(d)- UTM Dashboard & Menu Options - Recreational

Sign in with UAE PASS

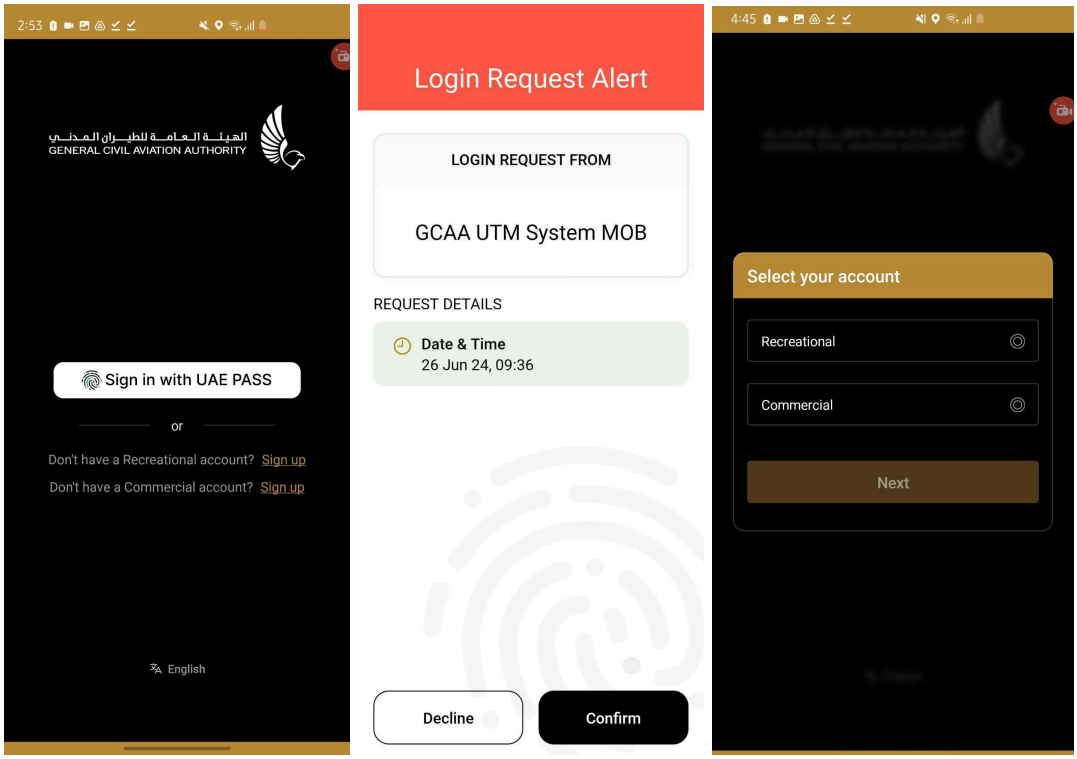


Figure 4-3(e)- Login with UAE PASS

1. If an account has already been setup, user will **Sign in with UAE PASS** the next time access to UTM is required.
2. Open App and click **Sign in with UAE PASS**
3. UAE PASS authorises the user and redirects them to UTM App once authorised.
4. User selects the account to sign into (either Recreational or Commercial) if more than one account has been linked to the user's UAE PASS as seen above.
5. Once an account has been selected the UTM will redirect the user to the UTM Dashboard for that account.

4.3.2 Commercial Organisation

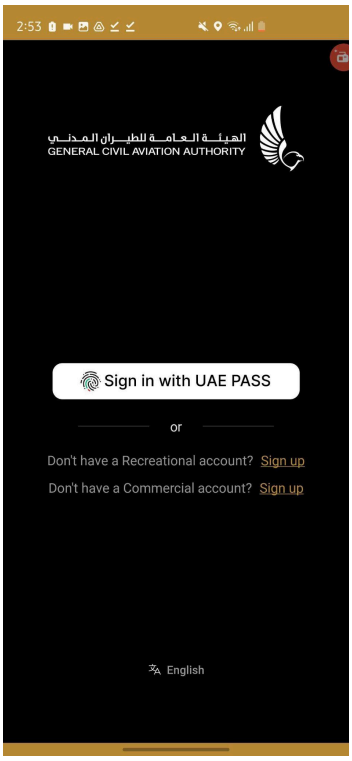


Figure 4-3(f): Registration - Commercial Organisation

1. Commercial pilots can **Sign in with UAE PASS** only once they have their account created by the Organisation Manager and have linked it with UAE PASS. This first requires that the Organisation Manager successfully registers the Organisation, and themselves, as described below.
2. To register a Commercial Organisation select **Sign up** where it says "**Dont have a commercial account?"** (See Section 5.1.2 for registration via the Web).

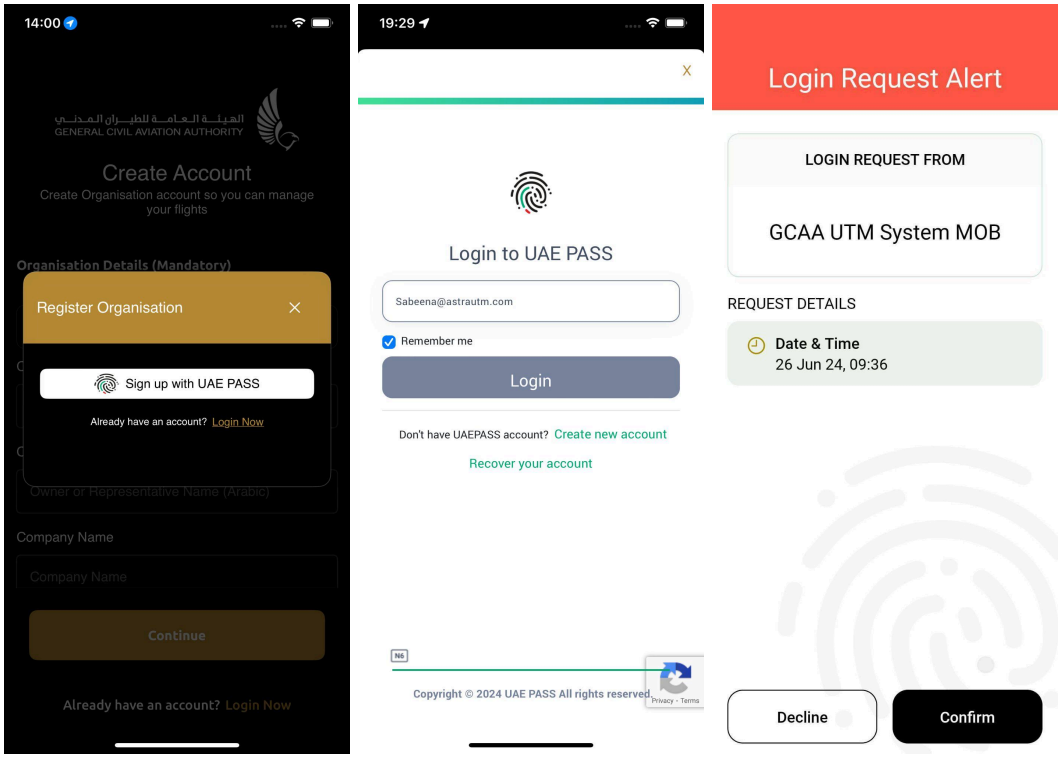


Figure 4-3(g)- Sign up with UAE PASS & Login to UAE PASS - Organisation

3. Click **Sign-up with UAE PASS** to be directed to the **UAE PASS Login** page
4. User must confirm that the UTM App is requesting login through UAE PASS or enter their Emirates Id, email, or mobile number if UAE PASS has been installed on another device. This will trigger an authorisation request to their UAE PASS device(UAE PASS App). For users who don't have a UAE PASS, a UAE PASS account must be created before registering on UTM.
5. Once users have been authorised by the UAE PASS App using their pre-configured PIN or fingerprint or Face ID, users will be redirected back to the UTM system to complete the registration form as seen below.

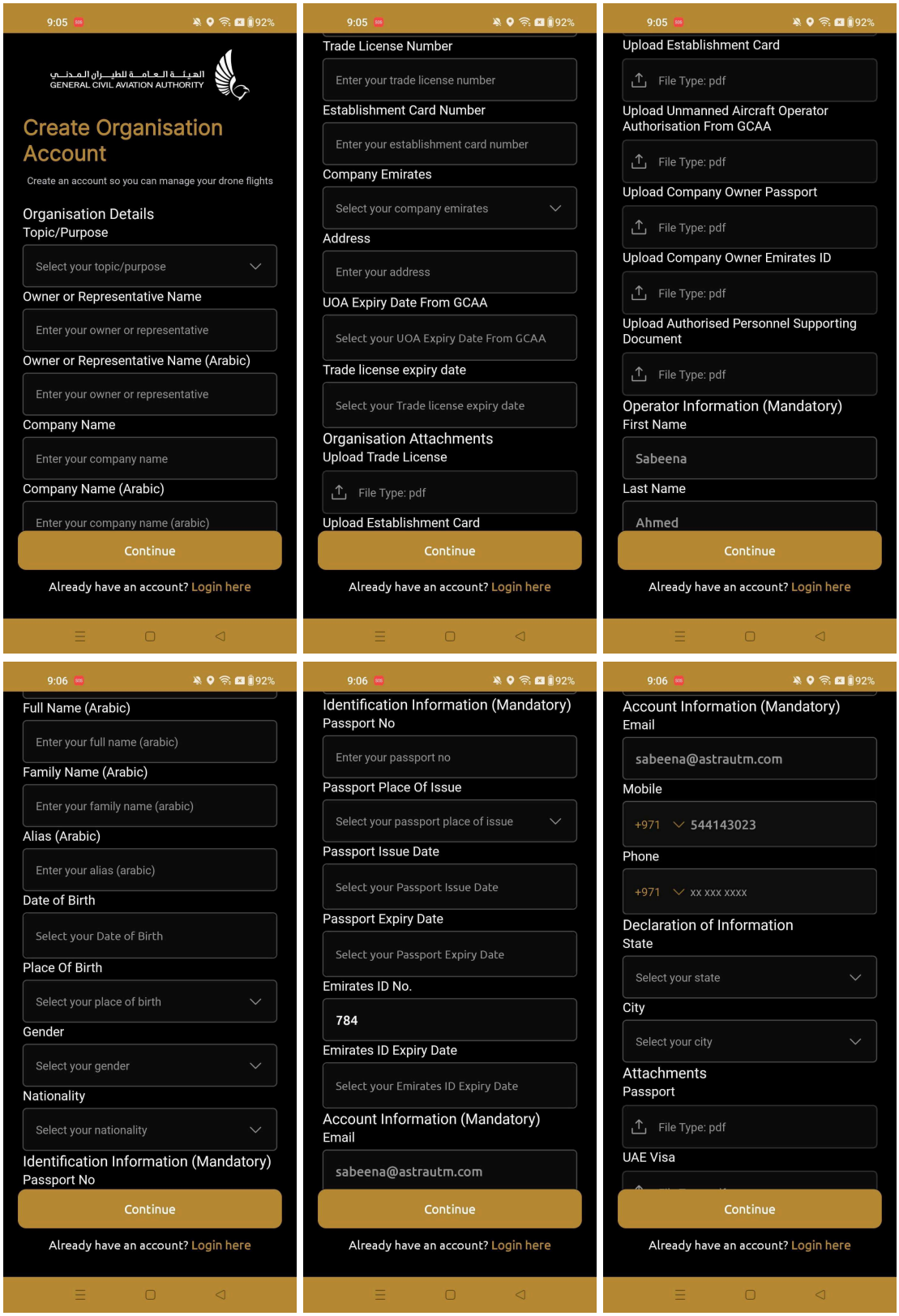


Figure 4-3(h)- Registration Forms - Commercial Organisation

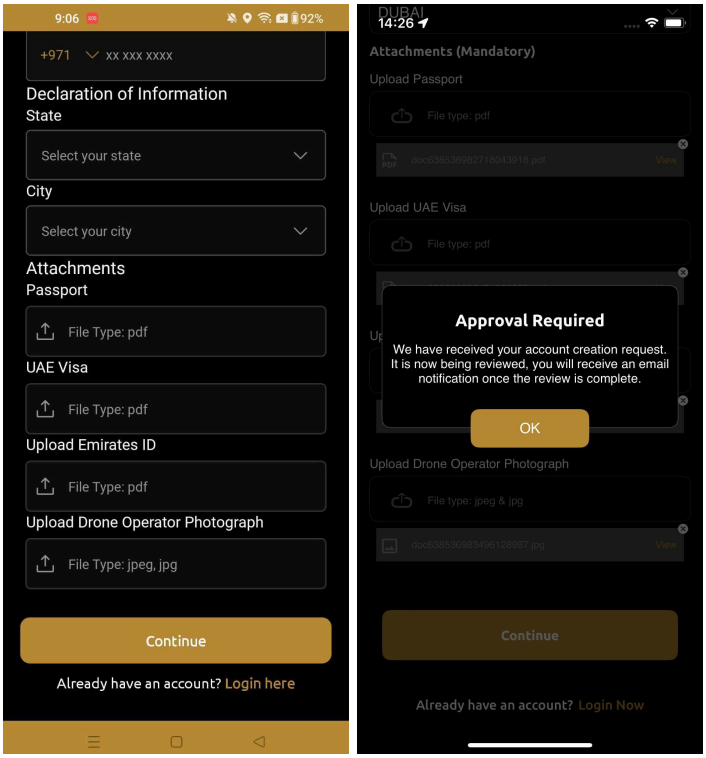


Figure 4-3(i)- Registration - Commercial Organisation

6. Select the type of organisation to be registered from the drop down menu labelled **Topic/Purpose**. Select either:
    a. Commercial
    b. Private Business or
    c. Government User
7. Continue completing the forms. If users have been verified by UAE PASS the forms will have auto populated with relevant information of the user, which includes their **Emirates ID.**
8. If the user is not verified they will not see their Emirates ID.
9. Enter the remaining information and attach any supporting documents.
10. Agree to **Terms and Conditions** then click **Continue**.
11. Upon submission of forms a popup notification will appear confirming the organisation's account creation request has been received and is being reviewed for approval. User will receive an email of outcome once review is complete.

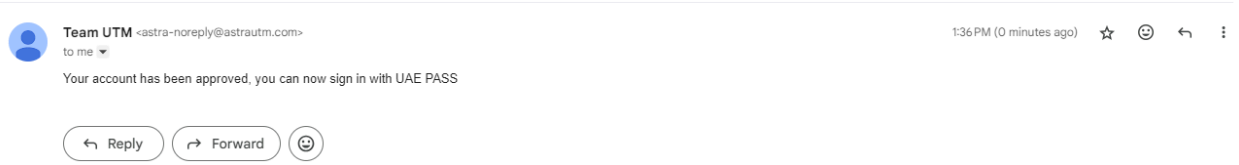


Figure 4-3(j): Approval of Organisation via Email

12. Approval of the Organisation and organisation manager's user profile also requires at least one drone be registered under the account.
13. Once approval has been granted , an email will be sent requesting a registration payment of 5000 AED be made before proceeding to use UTM.
14. When both approval and payment is complete, user can **Sign in using UAE PASS** from the welcome screen, and begin to register pilots and create flight requests.

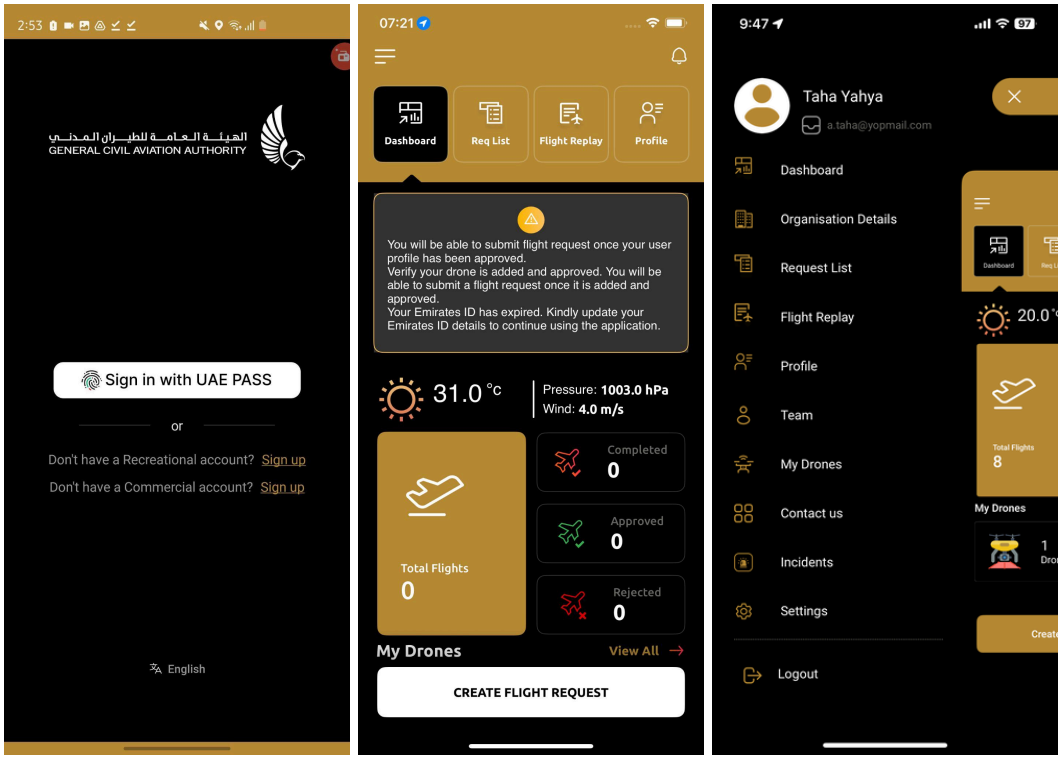


Figure 4-3(k): UTM Dashboard & Menu Options - Organisation Manager

Commercial Pilot Account Creation

Commercial pilots must be registered by their respective Organisation Manager before accessing UTM.

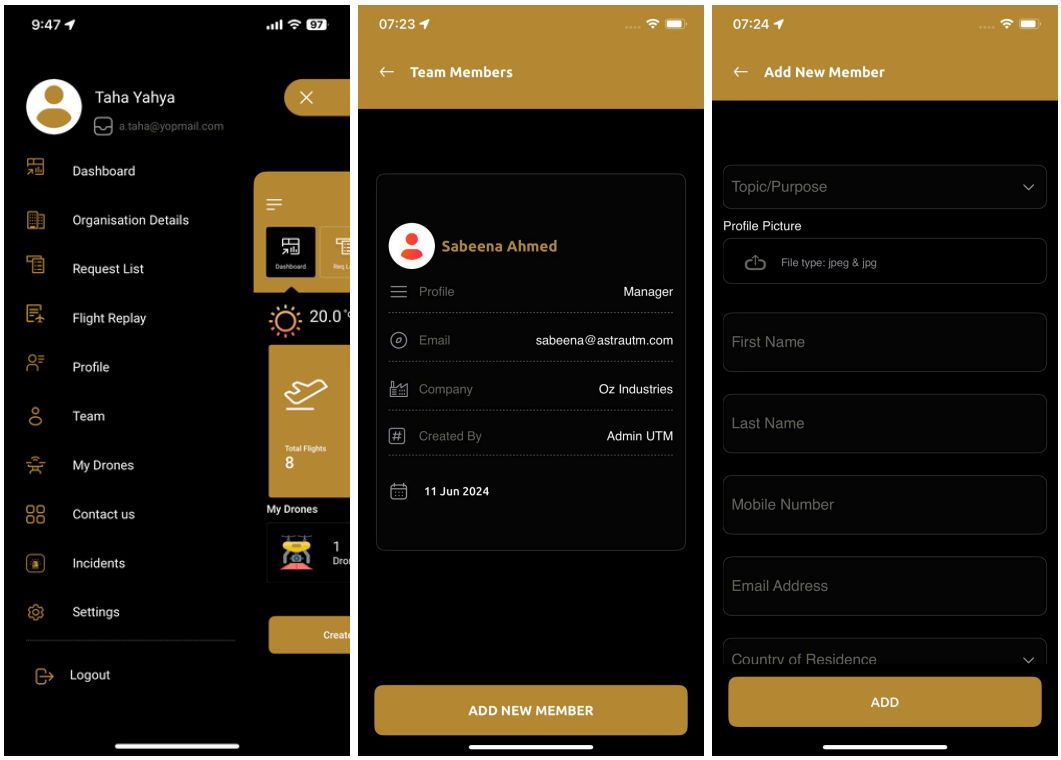


Figure 4-3(l): Creation of Commercial Pilot Account

1. The Organisation Manager signs into their UTM account with UAE PASS and selects **Team** from the menu options to create a commercial pilot's account.
2. Enter the required details and upload supporting documents of the pilot and click **Add**.

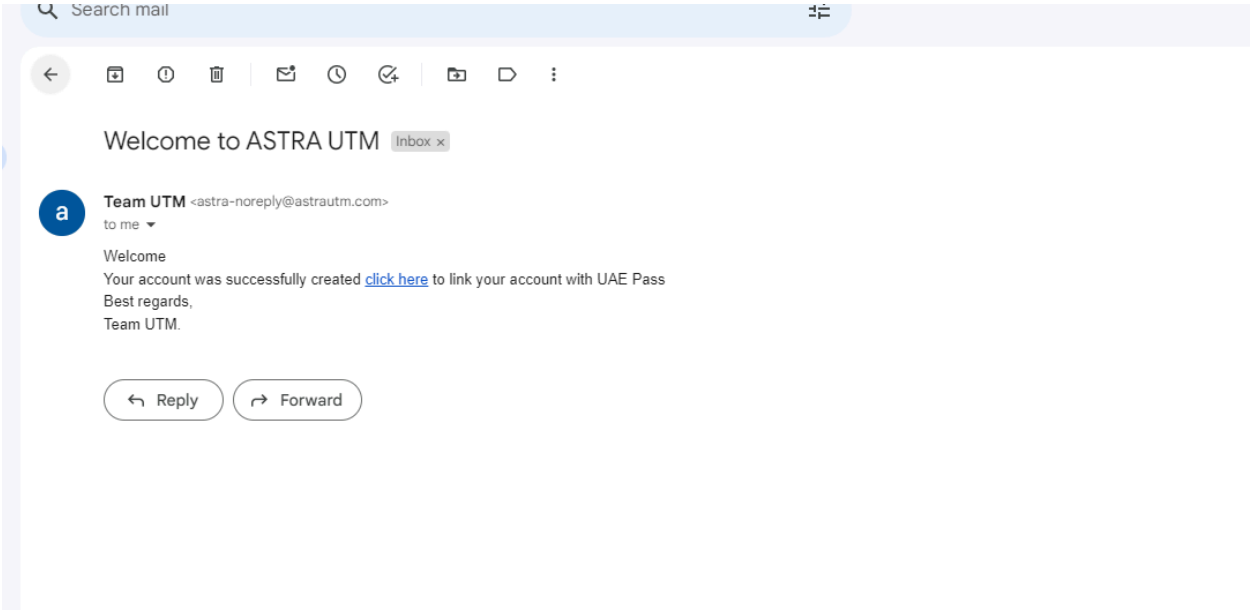


Figure 4-3(m): Link with UAE PASS - Commercial Pilot Account

3. An automatically generated email will be sent informing pilot of successful account creation prompting them to link their newly created account with UAE PASS, whilst at the same time the pilot's details will be sent to the Admin for approval.
4. Once the pilot has linked their account with UAE PASS and their user account has successfully been approved, an email is sent requesting a registration payment of 100 AED be made. Once payment has been processed pilot can began creating flight requests.

4.4 Dashboard

The **Home Dashboard** of the UAE Drones App is the main page of the application which provides users access to the features and functions of the system that help navigate and operate UTM.

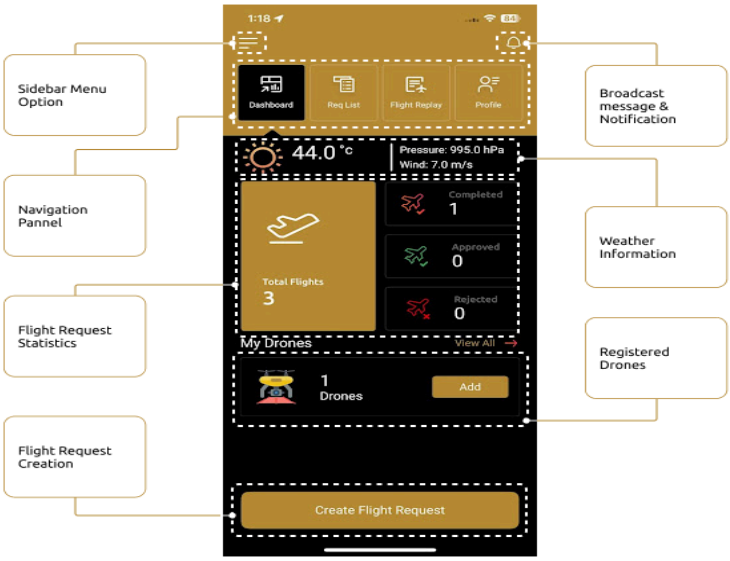


Figure 4-4(a): Pilot Dashboard

It houses the sidebar navigation menu, the button for which is visible in the top left corner, a quick summary of the current situational awareness which includes weather information, flight requests, drones registered under the profile, as well as quick links to **Flight Request List, Flight Replay** and **Profile** of the user.

The App's UTM Home Dashboard (See Fig 4-4(a) consists of the following features :

A. **Sidebar Menu Options**
B. **Broadcast Messages:** This feature allows the users to view broadcast messages located in the top right corner of screen.
C. **Quick Menu Options:** This feature of 4 tabs is located along the top of the screen and allows the user to have quick access to the following menu options:
    a. Dashboard

b. Request List
c. Flight Replay
d. Profile

Users can simply tap on these tabs to switch between multiple tabs.

D. **Weather Information**: This feature provides the user with weather information for the current location of the device, such as temperature, pressure and wind.
E. **Flight Request Statistics:** This feature provides users with information on the total number of flight requests submitted and a count of the flights that have been Completed, Approved and Rejected.
F. **Registered Drones:** This feature displays the number of drones registered under the pilot's profile.
G. **Flight Request Creation:** This feature at the bottom of the screen allows the user to create and submit flight requests.

4.4.1 Sidebar Menu Options

The sidebar menu options allow the operator user to navigate the features of the app. Note: menu options will slightly differ based on whether the operator is an Organisation Manager or an individual Recreational/Commercial pilot.

Tap on the **Menu icon** in the top left corner of the App's main screen to view all the sidebar menu options, as listed below. These are menu options for an Organisation Manager. Individual Recreational/Commercial pilots will not have access to Organisation Details and Team.

- Dashboard
- Organisation Details
- Request List
- Flight Replay
- Profile
- Team
- My Drones
- Contact Us
- Incidents
- Settings

4.5 Flight Request Creation

This section outlines the steps involved in submitting a flight request, the process for which starts from the Dashboard. At a glance, the Dashboard also provides the weather conditions for the day, as well as an overall count of the total number of Flight requests submitted, and the number of flights that have been **Completed, Approved** or **Rejected.** (See Fig 4-5(a) below).

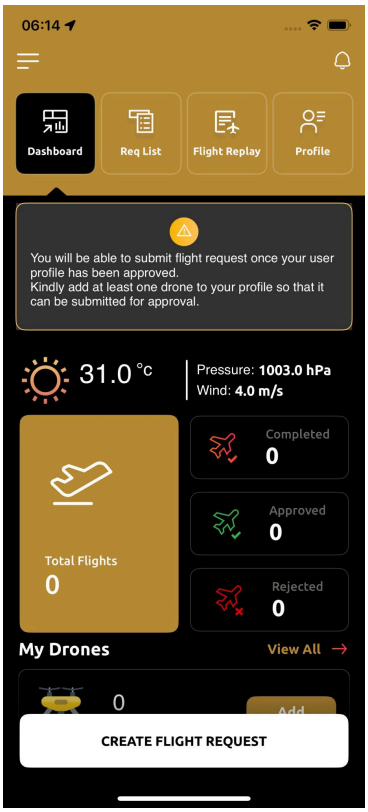


Fig 4-5(a): Dashboard

1. For new accounts : approval, and registration payments for pilot licence and organisation certificate is required, and at least one drone registered, before a flight request can be created. The user will receive a pop up notification informing them of this. To add a drone and have it approved See Section 4.10.

Flight Request Creation:

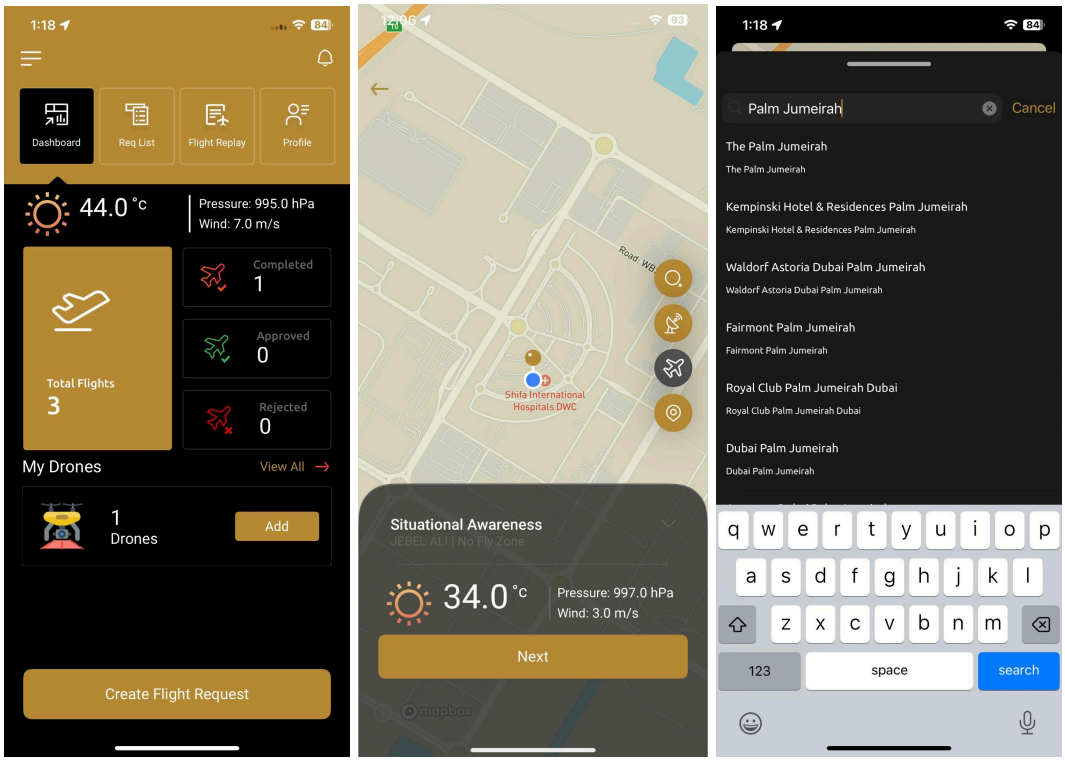


Figure 4-5(b): Flight Request Creation - I

1. Once the user profile and drone(s) have been approved by the Admin and registration payments have been successfully processed, the pilot can begin creating flight requests.
2. Select the **Create Flight Request** tab located at the bottom of the Dashboard.
3. The pilot users will be provided with the situational awareness for the location where the flight request is to be created, highlighted by the brown pin as seen above in Fig 4-5(b). This situational awareness will include weather, airspace, and live traffic information (manned and unmanned).
4. Tap on the **Search** button, the first of four map control options located on the right side of the screen, as seen above, and enter the **Location** of where the flight request is to be created.

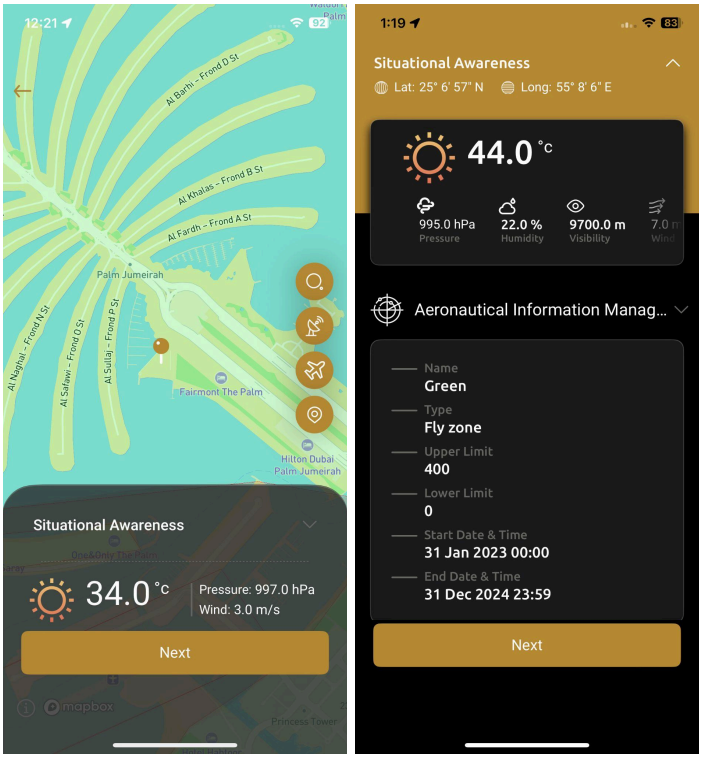


Fig 4-5(c): Flight Request creation - II

5. Tap on the screen to drop the pin on the precise area of the flight request, and to obtain the **Situational Awareness** for that location which includes the weather and airspace. Further details regarding the **Weather** and **Airspace** can be obtained by clicking on the drop down arrow located in the lower half of the screen in the section labelled situational awareness.
6. Tap on the second control option to select one of three modes in which to view the map interface: **Dark Mode, Light Mode** or **Satellite Mode**.

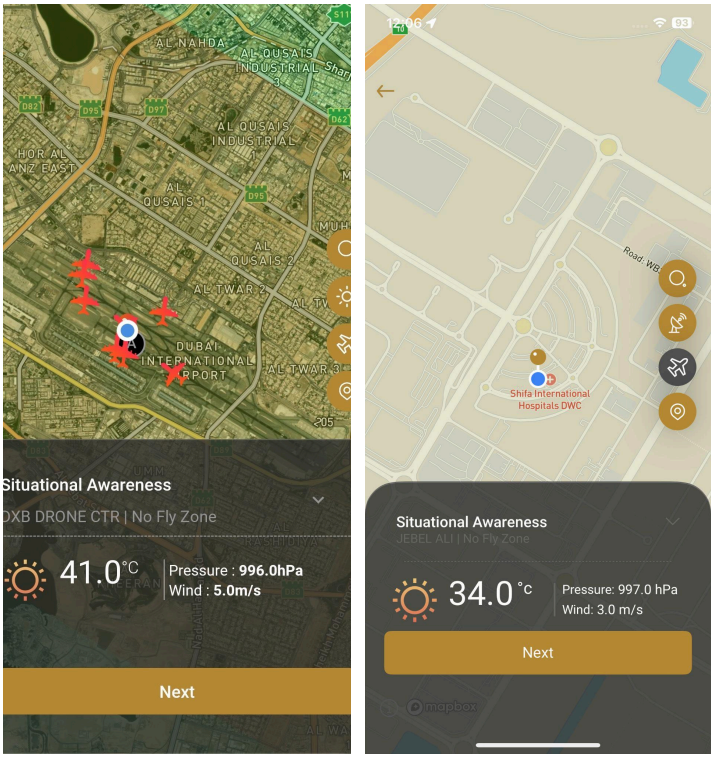


Figure 4-5(d): Flight Request showing manned traffic - III

7. Clicking the third control option allows the user to view live traffic (manned and unmanned) within 5km of the device being used - the user's "current location". (For reference the live traffic will appear as above but on the screen to the right). Live traffic at the actual location of the flight request will only be seen (within a 5km radius) once the flight has actually started.
8. Tap on the fourth option to reset and be navigated back to the user's location (Home) if required.
9. Select **Next ->** once the location for the flight request has been selected.

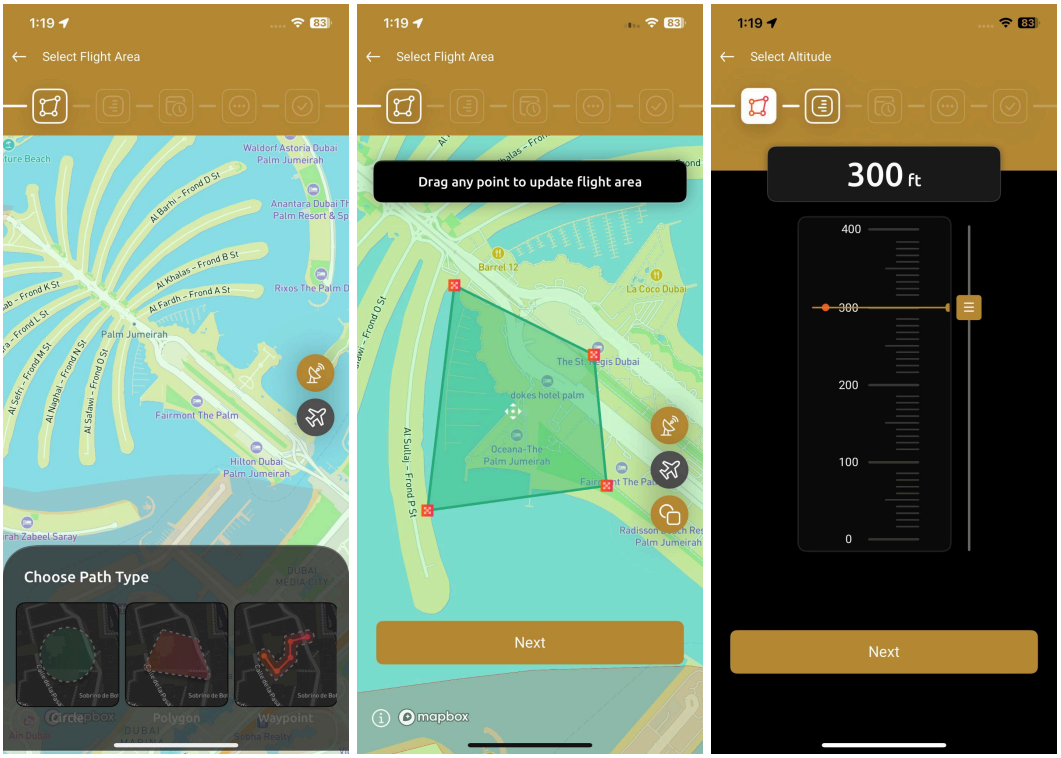
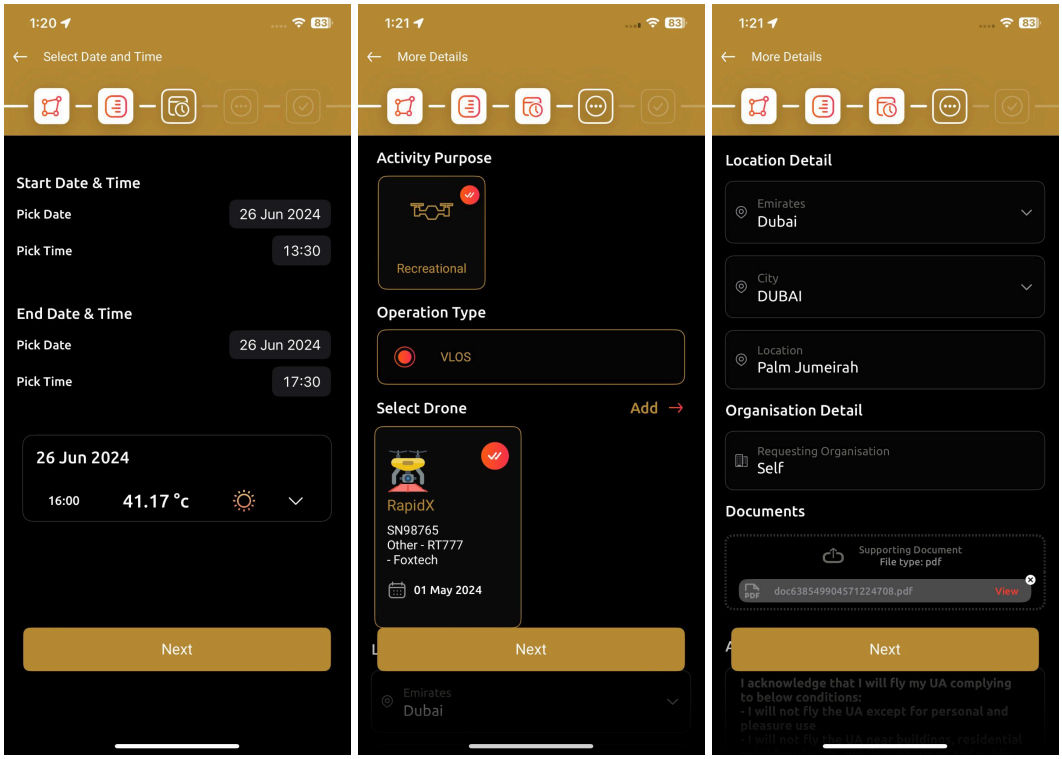


Fig 4-5(e): Flight Request creation - IV

10. Select one of the following options to define the operational area as seen above:
    - Circle
    - Polygon
    - Waypoint
11. When defining an area of operation using a circle, recreational pilots are limited to a maximum radius of 500m and altitude of 400 ft and a similar corresponding area when using a polygon.
12. Select and drag the points on the polygon to accurately define the area. For a circle, pilot users will have the option to adjust the radius for a more precise location. For waypoints, the pilots can define the path of their flight.
13. Tap on the defined area of the flight path to add vertices and create a more accurate area for the flight request. Tap and hold to delete a vertice. (NB. Maximum number of vertices that can be added are 20)

14. Select the **Altitude** of the flight by dragging marker to required height.
15. Select **Next ->** when done.



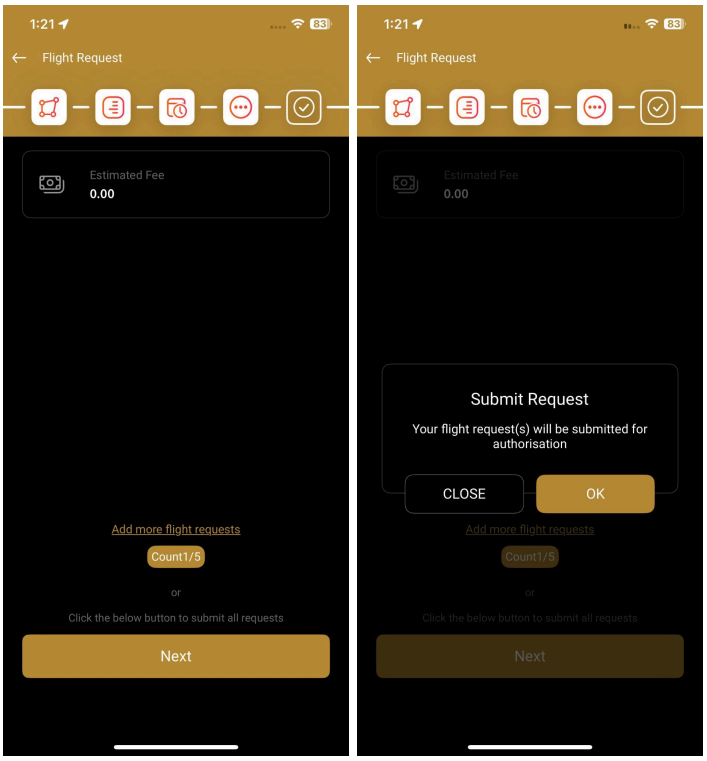


Fig 4-5(f): Flight Request creation - V

16. Select the **Start Date** and **Start Time** of the flight request as seen above as well as the **End Date** and **End Time.** (Note: Start date and End date of flight request must be the same for Recreational pilots as they are restricted to same day flights and only in the daytime.)
17. Select the **Activity Purpose** and **Operation Type (VLOS)** of the flight request.
18. Select the desired **Drone(s)** from the list of drones registered under the pilot's profile. Up to 5 drones can be selected for a flight request. However only one drone can be operated per flight request.
19. Add **Location** details of flight request and add **Self** in the field for Organisation Details.
20. Upload required supporting **Documents** and **Acknowledge Terms & Conditions.**
21. Select **Next ->** once all details have been entered.
22. Once the flight request has been validated an **Estimated Fee** for the flight request will be provided as seen above.
23. Users also have the option to include additional flight requests, enabling them to submit up to 5 requests simultaneously. If the user chooses to **add more flight requests**, the user will be redirected back to the flight planning stage and should follow the same sequence of steps as described above.
24. Select **Next ->** to accept the estimated fee and submit flight request(s).
25. A message stating **"Your flight request(s) will be submitted for authorisation"** will appear as seen above in Fig 4-5(f).
26. Tap on **OK** to acknowledge and submit the flight request.

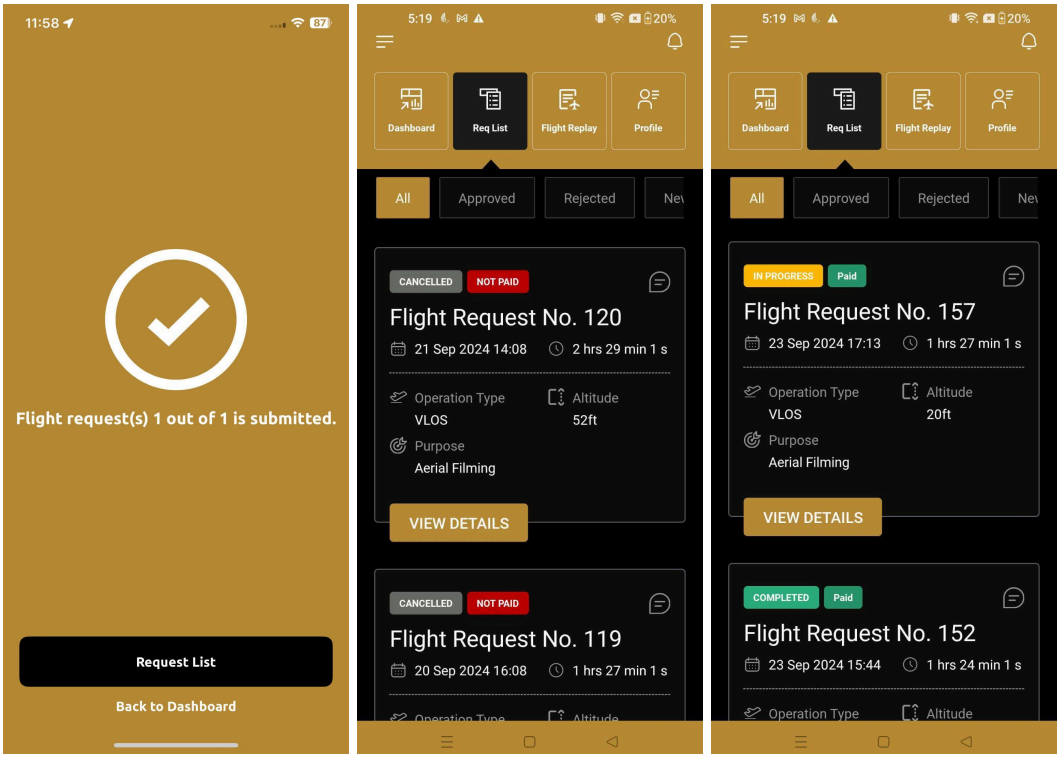


Fig 4-5(g): Flight Request creation - VI

27. A confirmation message stating the "**Flight request(s) has been submitted"** will appear. Pilot users will now wait for approval before proceeding further.
28. Once a **commercial flight request** has been approved an email requesting payment for 1000 AED will automatically be generated and sent directly to the commercial pilot. The system allows up to 10 flight requests to be created and submitted under the one flight request submission for a flat fee of 1000 AED, 1500 if a Risk Assessment has been attached. Payment status will appear as NOT PAID in the request list and dashboard (seen above) until payment has been made at which point the status will change to PAID. A pilot cannot commence operations until this payment is made. **Recreational flight requests** have no charge and by default will appear as PAID on the pilots Mobile App.

    Note: Operators cannot cancel a flight request after its submission. This can be done only after it has been approved.

29. Select **Request List** to view details and status of fight request submitted

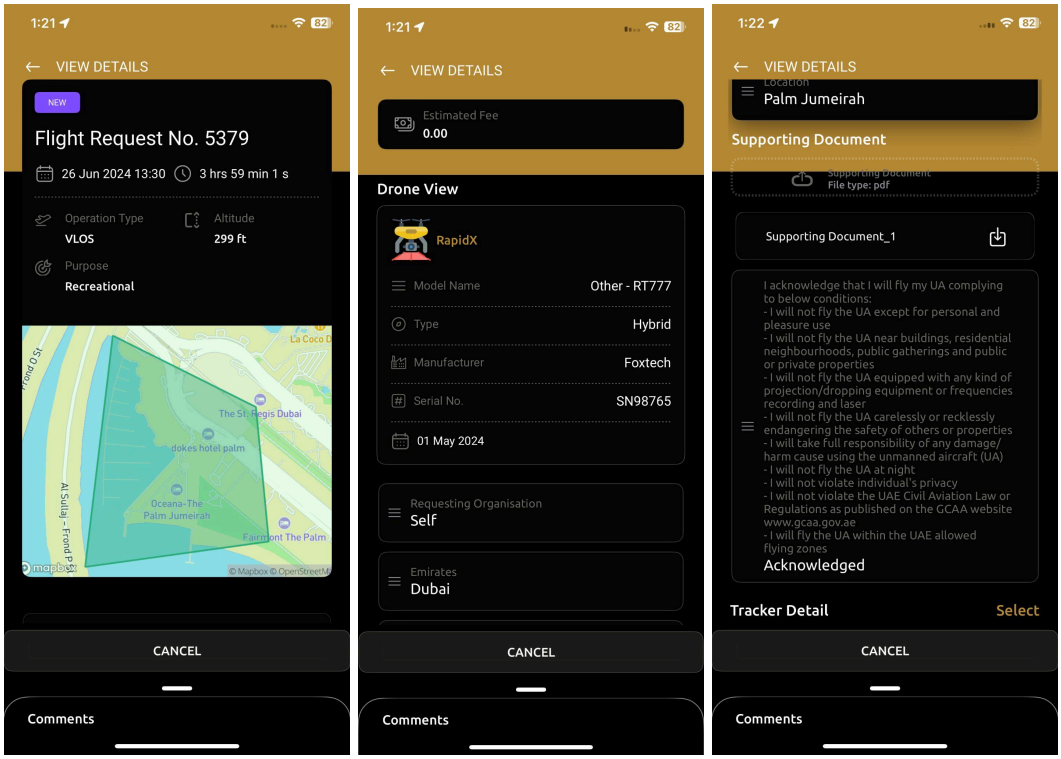


Fig 4-5(h): New Flight Request - VII

30. Flight Request will appear as **New** under the **All** tab by default.
31. Select **View Details** of the flight request in question. This will appear as **New** under the **All** or **New Tab** until it is approved by the relevant authorities. Likewise, other flight requests submitted and their status can be viewed by tapping on the respective status tabs located below the main menu options. Scroll to the right to see other status options.
32. It is at this point that the pilot can select and assign a tracker to the flight request if required. Scroll to the bottom of the details page and tap on **Select** located to the right of where it says **Tracker Detail.**
33. A list of all the trackers assigned to the user or to the user's organisation will appear.
34. Select the tracker to be used for the flight request and then select **Assign**.

Note: During the flight request creation planning & management process pilots will receive in app notifications on the status of the flight request(s) and can view them during any stage by tapping on the broadcast messages/notifications bell in the upper top right corner of the screen.

4.6 Request Status

The **Request List** provides users a list of all the flight requests submitted under the Pilots account, along with the payment status, and flight status of each flight request, as being either:

- Approved
- Rejected
- New
- In Progress
- Cancelled
- Completed
- Amended
- Activated
- Terminated
- Declined

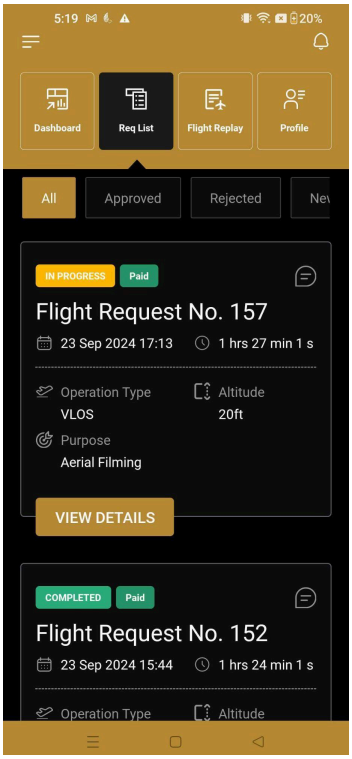


Fig 4-6 (a): Flight Request List

1. Select **Request List** from the sidebar menu options or via the quick menu options at the top of the App's main screen.

2. Flight requests submitted can be found under the **All** tab or under their respective status tabs (Approved, Rejected, New, In Progress, Amended, etc).

Once the flight request is processed by the admin, the user will receive a notification on their mobile device indicating the status update (Approved, Rejected, or Amended).

Approved Requests:

- If the flight request is approved, the user is authorized to conduct the flight at the scheduled time.

Rejected Requests:

- If the flight request is rejected, the user will not be permitted to conduct the flight.

Amended Requests:

- The Approver has the authority to modify the flight request by adjusting parameters such as altitude or radius (for circular flights) and will notify the user of any amendments.
- Upon receiving the amended request, the user must review the changes and decide to either accept or reject them.
    - Acceptance: If the user accepts the amendments, the flight request will be approved.
    - Rejection: If the user rejects the amendments, the flight request will be rejected.

To respond to an amended request:

1. Select the Flight Request with the status "Amended."
2. Click the "View Details" button.
3. At the bottom of the screen, choose either the "Accept" button to approve the changes or the "Decline" button to reject them.

By following these steps, the user can ensure the proper processing of their flight requests based on the given status updates.

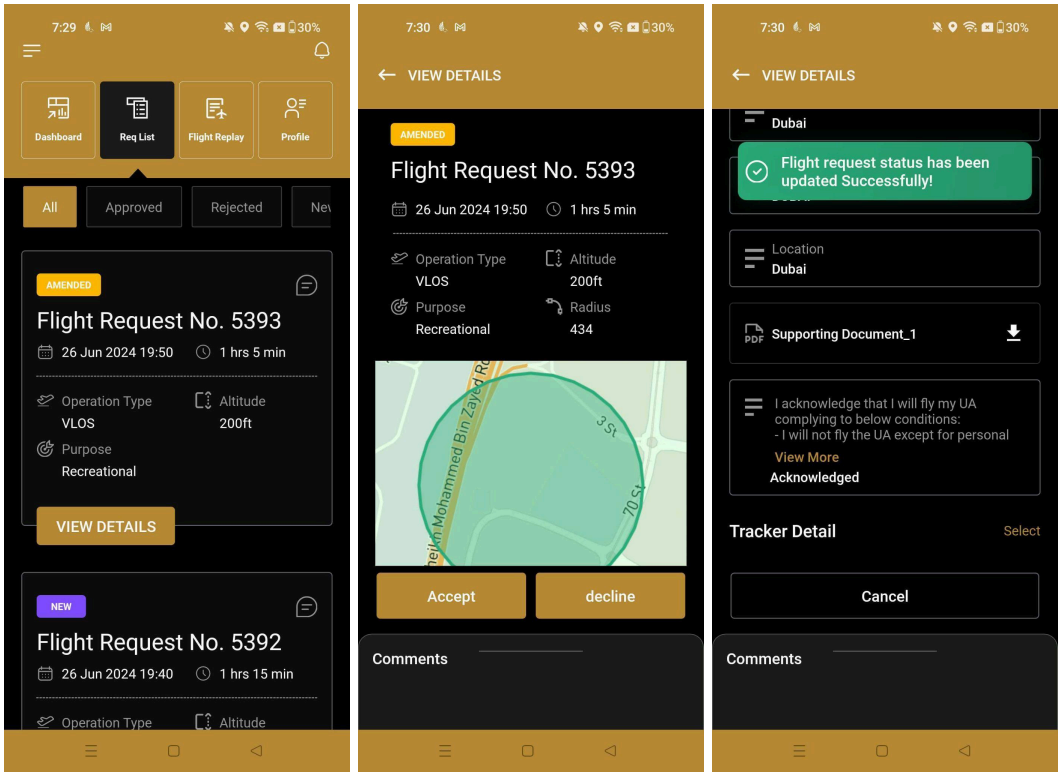


Fig 4-6 (b): Flight Request List

4.7 Live Flight

Once a flight request has been approved, a notification of approval will be sent to the Pilot as seen in Fig 4-7(a) below and the pilot can now proceed to start the flight on the day and time it has been approved for by following the steps below:

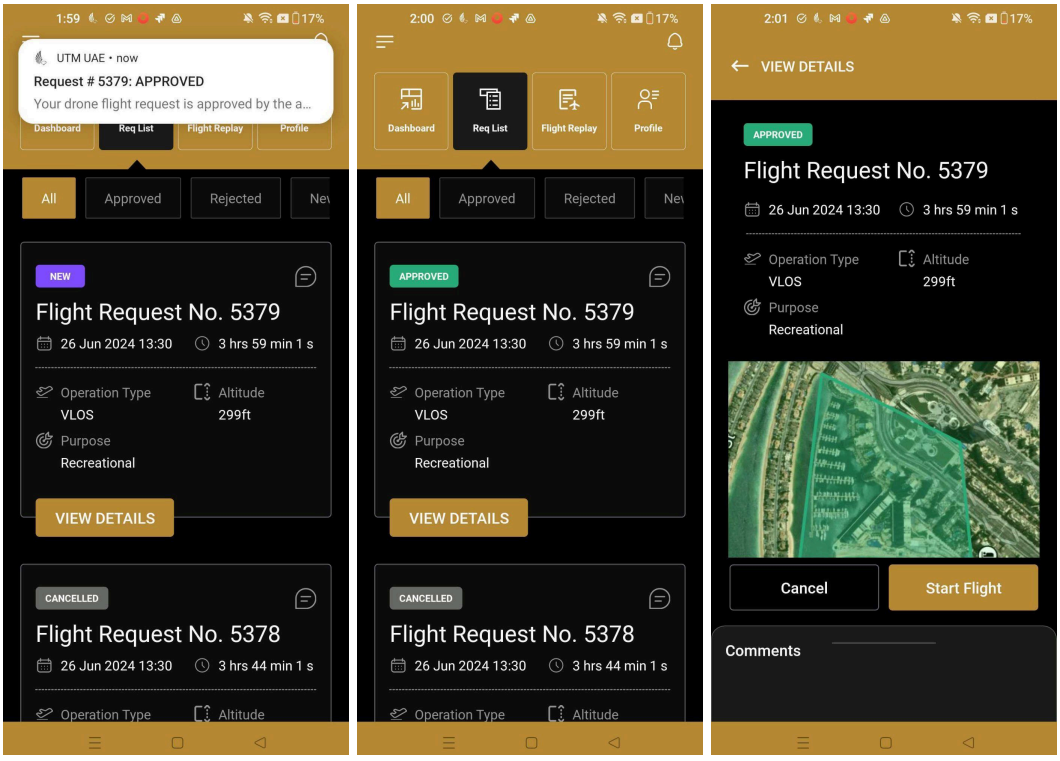


Figure 4-7(a): Flight Request Status Information

1. Select **Request List** from the sidebar menu or the quickstart menu options to view a list of all the flight requests submitted and their status.
2. Tap on the **All** or **Approved** tab and locate the flight request to be conducted. Status would have changed from **New** to **Approved.**
3. Select **View Details** for that particular flight request.
4. Select and assign **Tracker** if one still hasn't been assigned and is required to conduct the flight (see Fig 4-5(h), section 4.10 and section 4.11)
5. A message that the tracker has been successfully assigned will appear.

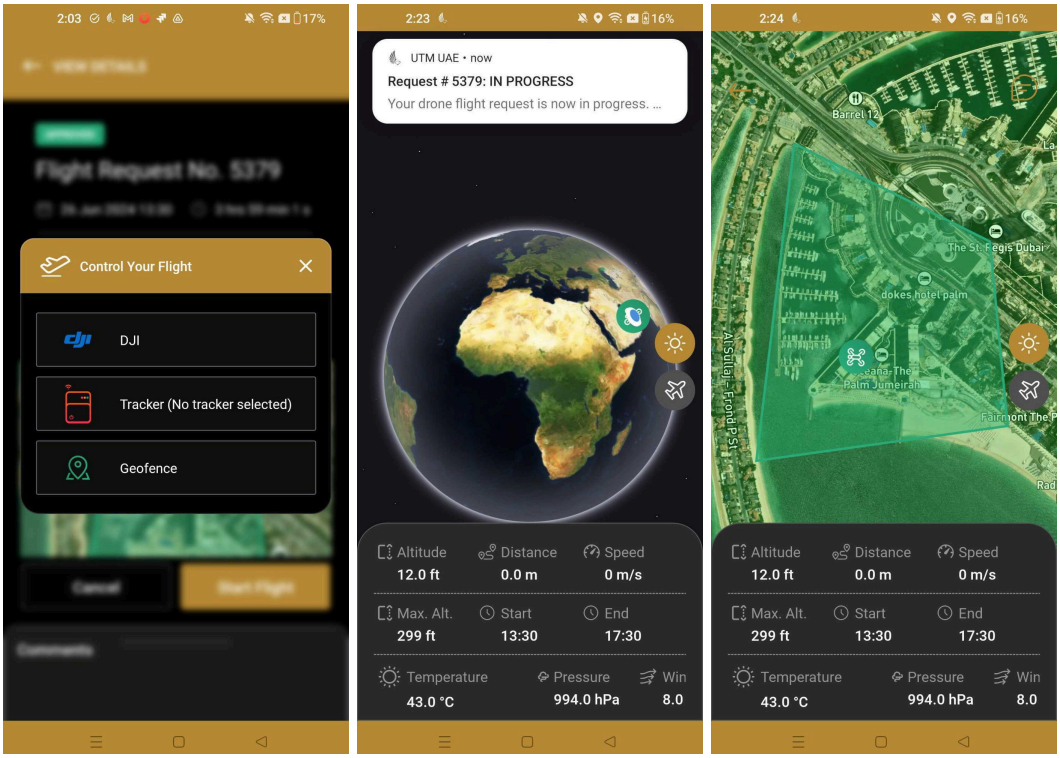


Figure 4-7(b): Start Flight using Tracker

6. Tap **Start Flight** located at the bottom of the page when it is time to start the flight. (NB. The option to start the flight will only appear once the Approver(s) has approved the flight and when it is *actually* time to start the flight).
7. The system will prompt the pilot to select one of the following three options to commence and start tracking the flight(See Fig 4-7(b) above):
   - DJI or
   - Tracker
   - Geofence

See below for the Tracker and DJI workflow.

4.7.1 Tracking Device

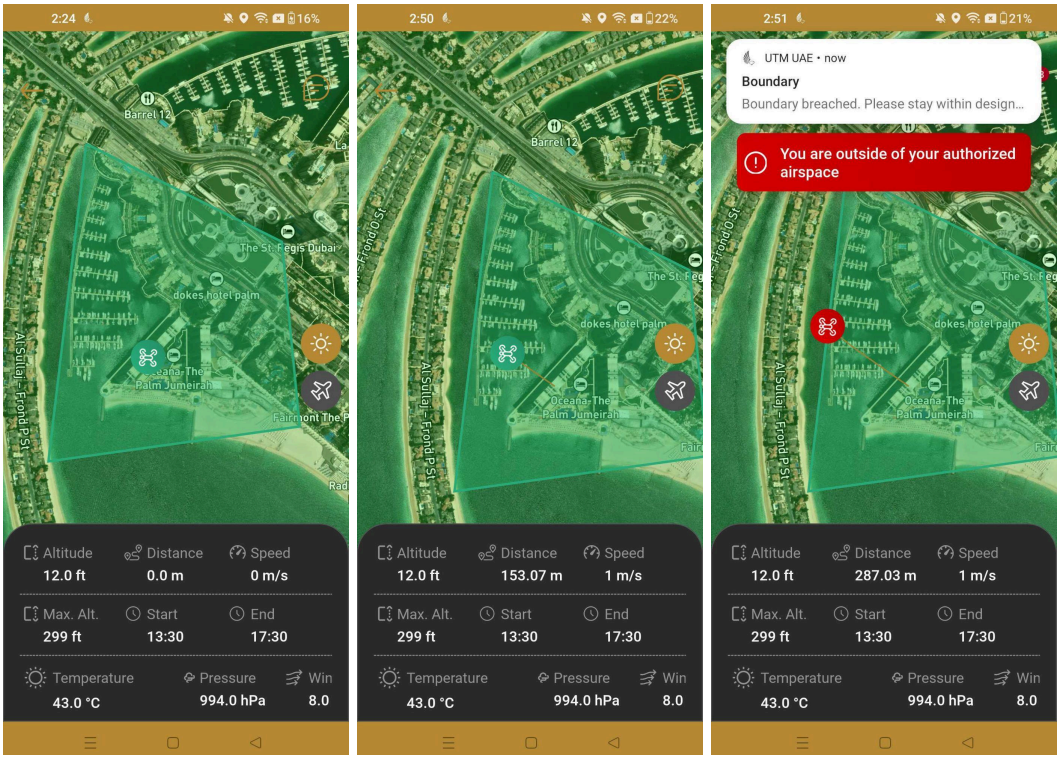


Figure 4-7(c): Flight Request in Progress

1. Select **Tracker** to commence the flight (see Fig 4-7(b)).
2. The pilot will now receive a notification that the **"Drone flight request is now in progress"** as seen above in Fig 4-7(c).
3. Zoom in to the screen to view the flight track (seen in red) more accurately.

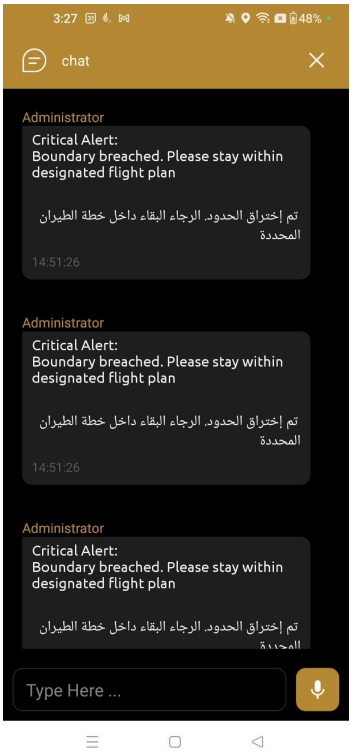


Fig 4-7(d): Boundary Breach and Comms Panel

4. During the flight, users can receive notifications and alerts. These will flash across the top of the screen and can be viewed in the **Comms Panel** as well.
5. Tap on the **Chat button** in the top right corner of the Live flight page to display the comms panel as seen above.
6. Pilots can accordingly respond to any instructions received from the authorities via text or audio messages. For example, any breach of boundary outside the authorised flight path will generate an alert that the pilot is outside the authorised airspace(See Fig 4-7(d)) above).
7. Tap the orange **Traffic icon** on the right side of the map interface to display any manned and unmanned traffic within 5km of the operation zone.

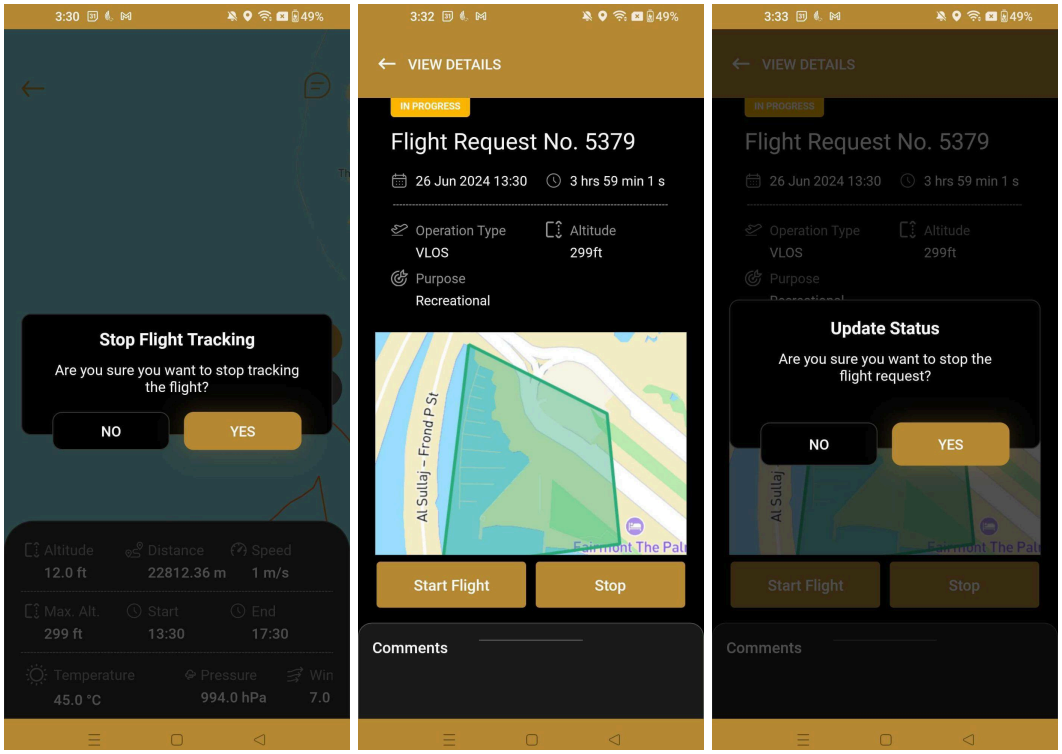


Fig 4-7(e): Completion of Flight Request

8. Once the flight request has completely ended or if the pilot decides to temporarily stop the flight (e.g this can be in order to report an incident) user can tap on the **back arrow** in the upper left corner of the screen. The system will prompt the user via a pop-up message to "**Stop tracking the flight**".
9. Select **Yes** to stop tracking flight and be redirected back to the details page.
10. Tap **Complete** to conclude the flight operation or **Start Flight** to resume if flight was temporarily stopped.
11. Select **Yes** to confirm completion of flight request.
12. Pilot will receive an in app notification that the "**Drone flight request is completed".**

4.7.2 DJI - Mobile SDK

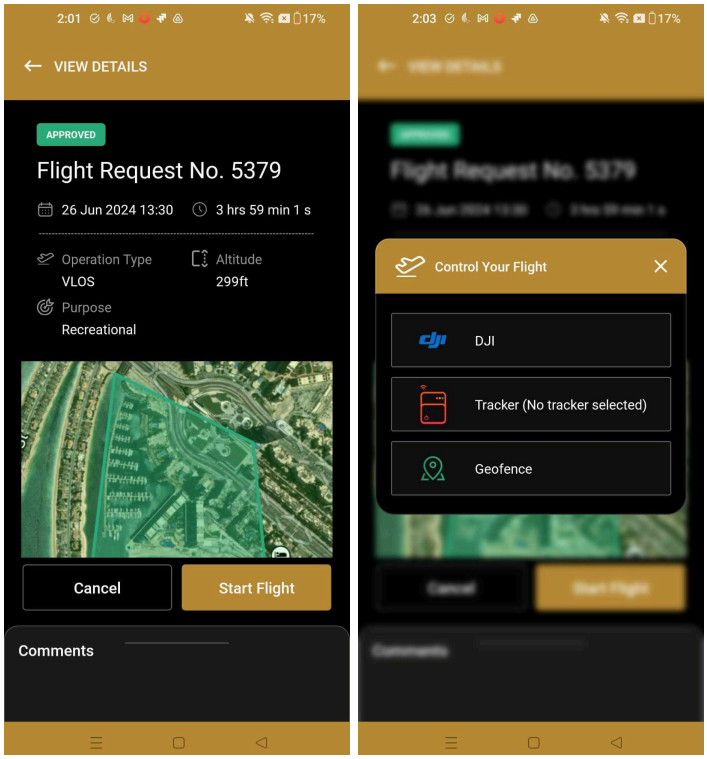


Fig 4-7(f): Start Flight using DJI

1. Tap **Start Flight** located at the bottom of the page when it is time to start the flight. (NB. The option to start the flight will only appear once the Approver(s) has approved the flight and when it is *actually* time to the start time).
2. The system will prompt the user to select one of the following two options to commence and start tracking the flight:
   - DJI or
   - Tracker
3. Select **DJI** to commence the flight.
4. The screen will now navigate to the **DJI Live flight** screen as seen below.

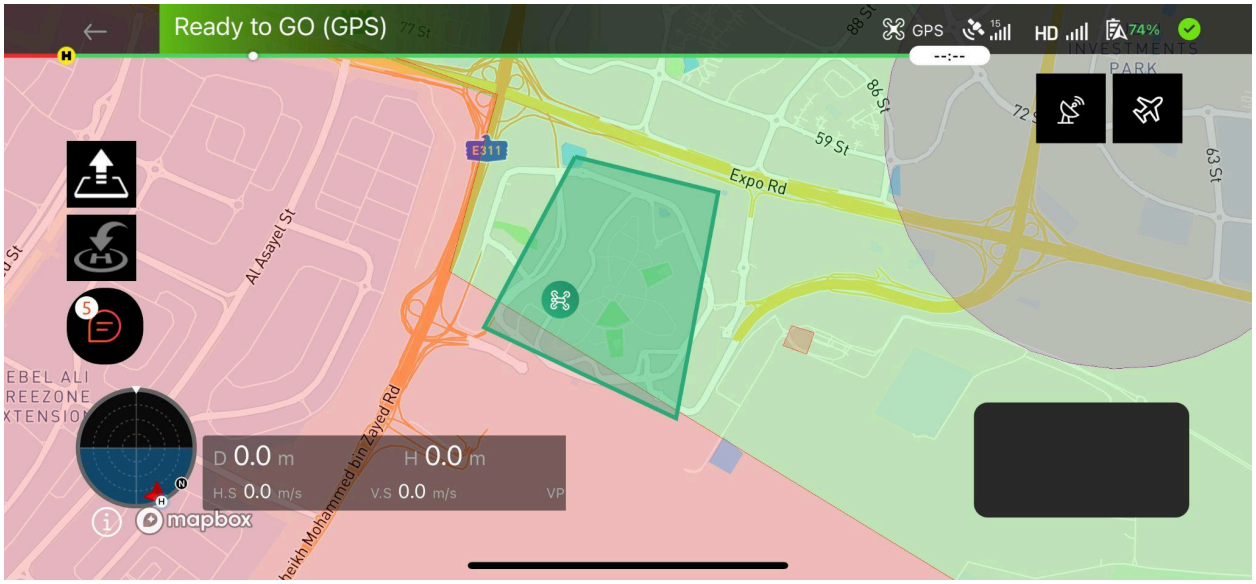
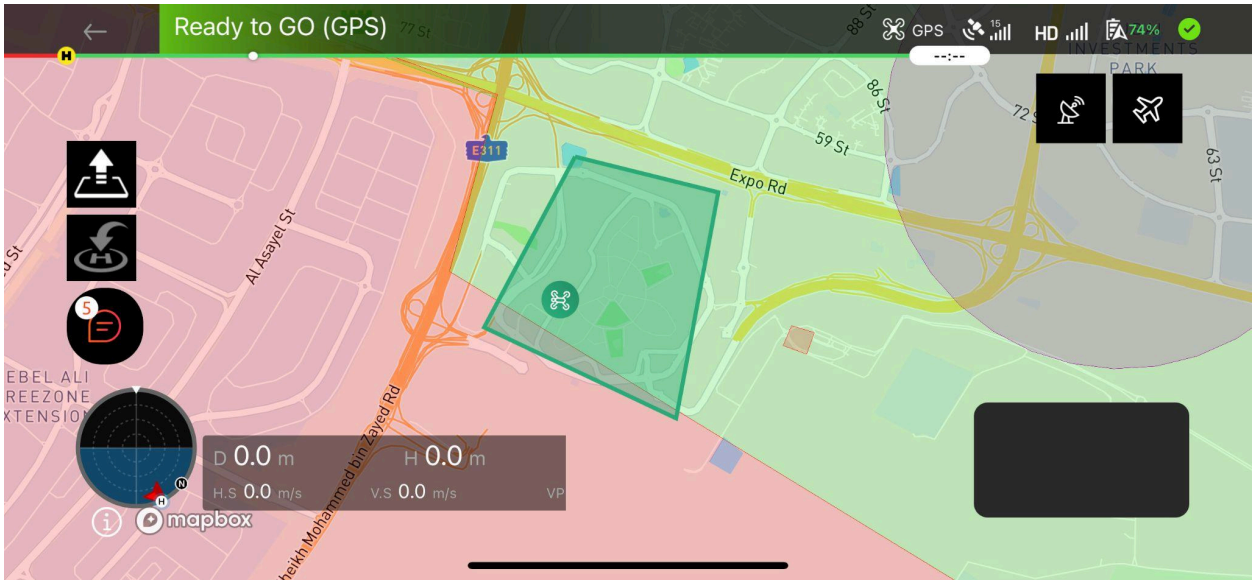


Fig 4-7(g): Flight Request using DJI in progress

5. The pilot will receive a notification that the **"Drone flight request is now in progress"**
6. Select the inset image in the lower right corner of the main screen to visualise the flight in full screen.
7. Zoom in for a more accurate picture of the flight operation.
8. Click on the traffic icon in the top right corner to view live traffic within 5km of the drone operation zone. (see Fig 4-7(h)).
9. To the left of the screen are **2 control buttons** which automatically control the take off and landing of the drone, eliminating the need for the pilot to manually take off and land the drone using the remote control. The control buttons are as follows:
    - The first one is the **Take Off/Land** button, and
    - The second is the **Return to Home (H)** button



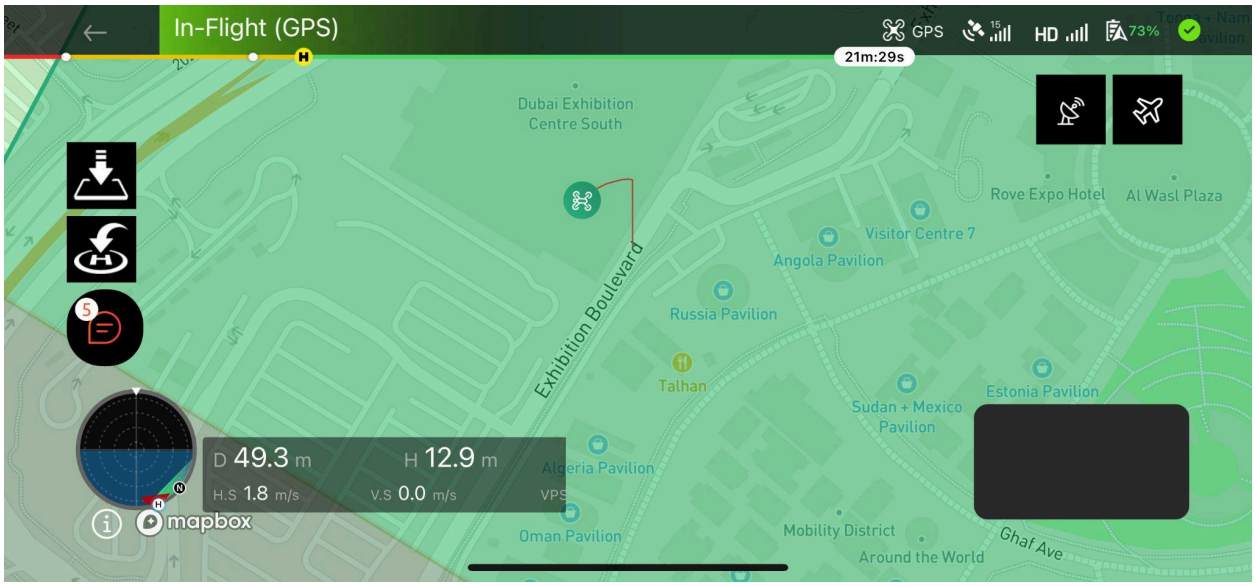


Fig 4-7(h): Flight request (DJI) in progress (full screen)

10. Tap the **Take Off/Land** button to lift the drone off the ground and commence the flight. This manoeuvre is indicated by the upward facing arrow. Once flight has commenced the arrow will revert to pointing down providing the pilot the option to automatically land the drone when required, such as in an emergency or when the flight has been completed.

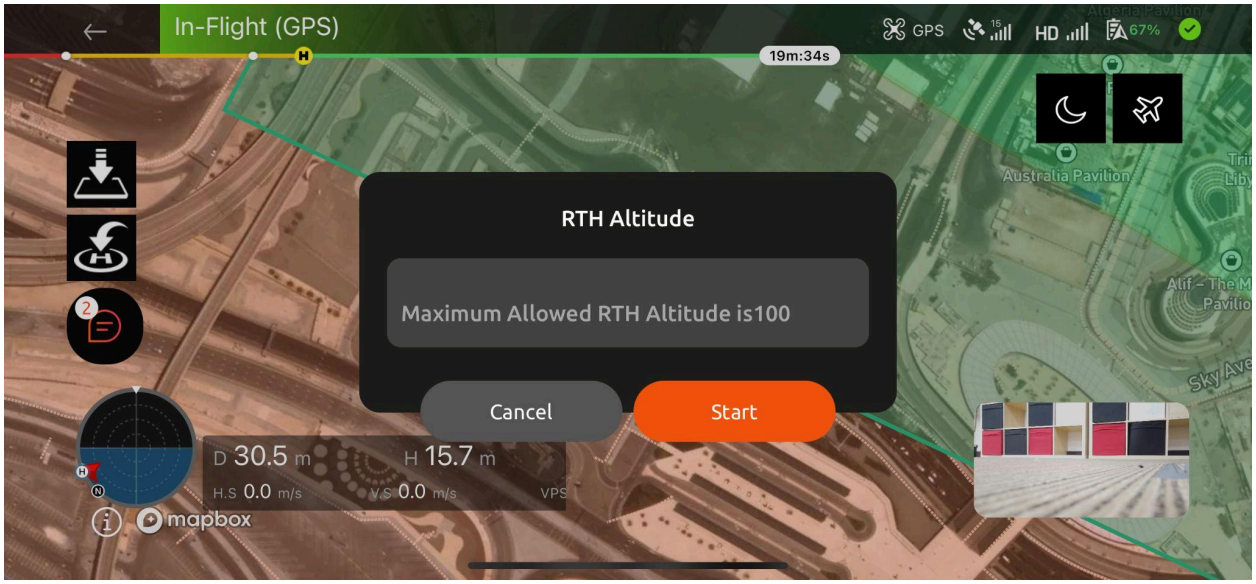


Fig 4-7(i): Return to Home (RTH)

11. The **Return to Home** (**H)** button when selected during the flight, allows the pilot to automatically return the drone to the location where it originally took off from. A message stating the **RTH Altitude** (Return to Home) will pop up. This is the **maximum allowed altitude** that the drone can fly at when returning home and is the altitude that was selected during the creation of the flight request.
12. Tap **Start** when required to initiate the return to home manoeuvre.

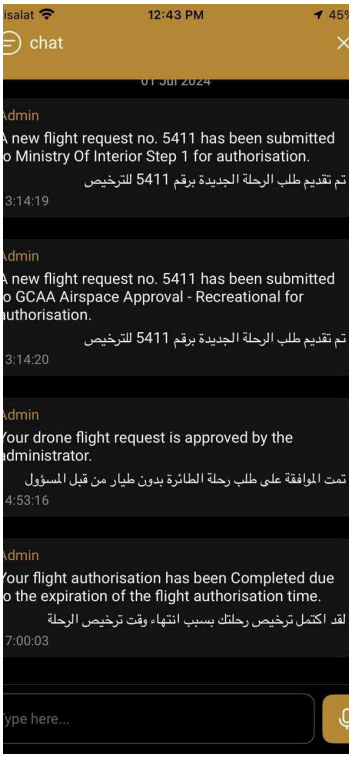


Fig 4-7(j): Comms Panel

13. During the flight, users can visualise the track of the drone(seen in red in Fig 4-7(h)), and receive notifications and alerts that will flash across the top of the screen. The notifications can also be viewed in the **Comms Panel** as seen in Fig 4-7(j).
14. Tap on the **Chat button** on the left hand side of the Live DJI flight page to display the comms panel.

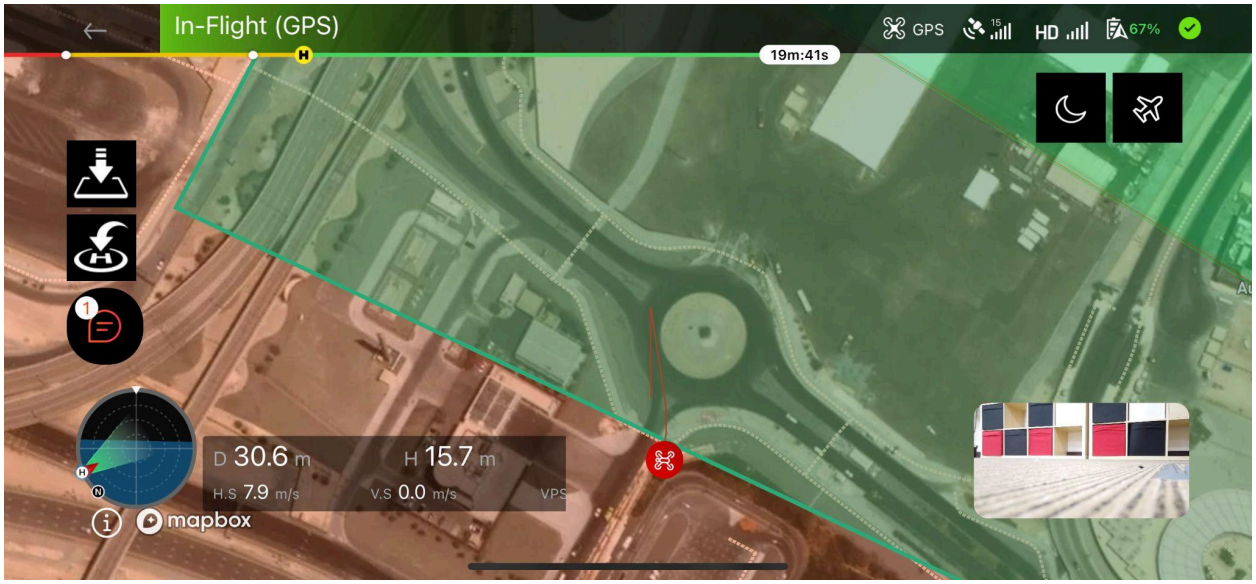


Fig 4-7(k): Boundary Breach (DJI Flight)

15. Pilots can accordingly respond to any instructions received from the authorities via text or audio messages.
16. Any breach of boundary outside the authorised flight path will turn the drone red and generate an alert that the pilot is outside the authorised airspace. See Fig 4-7(k) above.

Flight 4-7(l): Completion of Flight Request (DJI)

17. Tap on the **back arrow** in the upper left corner of the screen once the

flight request has ended or if required to temporarily stop the flight (e.g this can be in order to report an incident). The system will prompt the user via a pop-up message to "**Stop your current flight**".

18. Select **Yes** to stop the flight and be redirected back to View details page.
19. Tap **Complete** to conclude the flight operation or **Start Flight** to resume if flight was temporarily stopped.
20. Select **Yes** to confirm completion of flight request.
21. Pilot will receive an in app notification that the "**Drone flight request is completed".**

4.8 Flight Replay

This feature allows the pilot to replay the drone flight operation once the flight has been completed. The **Flight Replay** menu option can be accessed via the sidebar menu options or from the quick menu options at the top of the main screen.

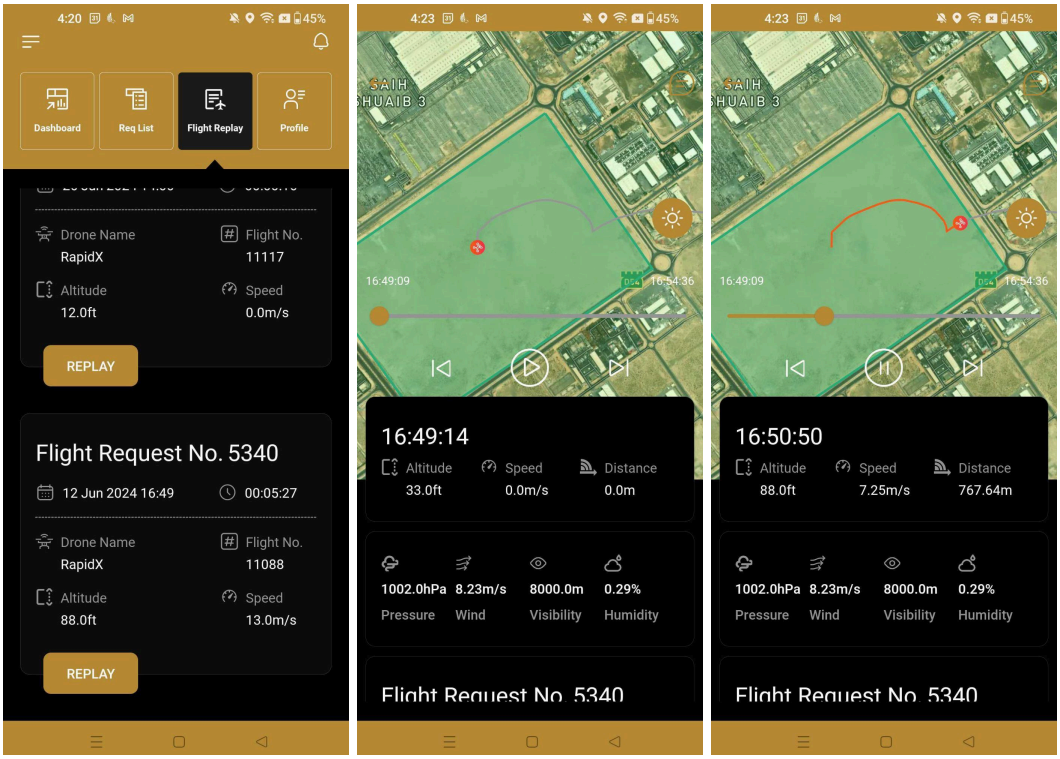


Figure 4-8(a): Drone Flight Replay

1. Select **Flight Replay** from the sidebar menu or the quick menu options to be navigated to the list of flight requests conducted under the users profile.
2. Select **Replay** to play back the drone flight telemetry of the flight request in question.
3. Tap on **Play** to replay the flight. Default controls to fast forward, rewind and pause are available on the flight replay as seen in Fig 4-8(a) above.

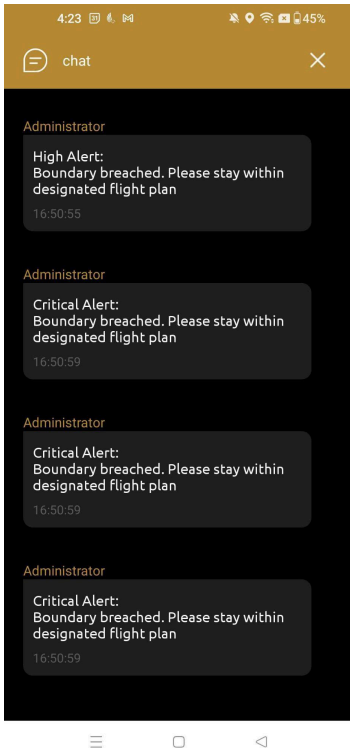


Fig 4-8(b): Drone Flight Replay Comms

4. Select the **Comms button** in the top right corner of the Flight Replay page to view the comms panel which displays any communication that took place, via text or audio, between the pilot and relevant authorities during the flight operation.
5. Tap on the **orange arrow** in the top left corner to navigate back to the main Flight Request page of the App.

4.9 Profile

The Profile section is where users can easily view, edit and update their personal details that were entered upon initial sign-up. This information includes the user's name, photo, mobile number, nationality, passport number and Emirates ID. Users can delete their profile and update their password from here as well.

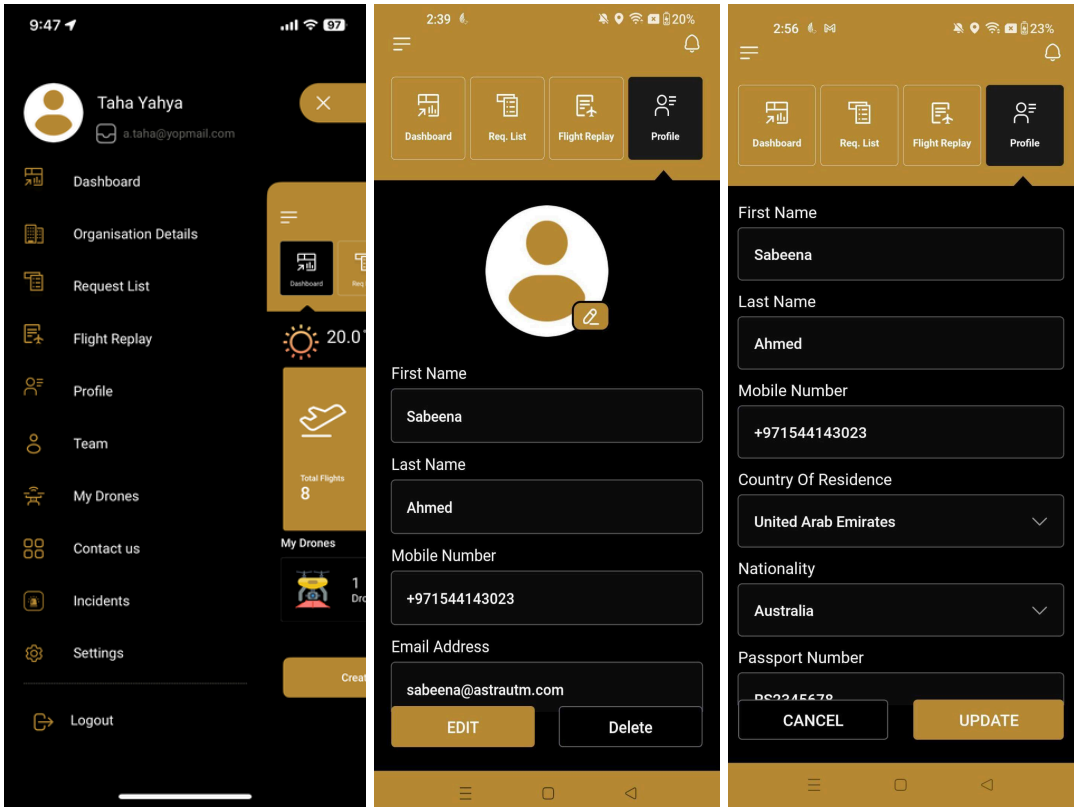


Fig 4-9(a): Profile Edit

1. Select **Profile** menu option from the sidebar menu panel or from the quick menu options located at the top of the App's main screen.
2. Select the **Edit** tab at bottom of the screen to edit details.
3. Tap **Update** when done.
4. Users will receive a notification that **Profile was updated successfully.**
5. Any changes must go for back for approval by the Admin.
6. Select **Delete** to delete the user profile.

4.10 My Drones

This feature allows the pilot (Recreational) to register a drone under the pilots account. The Admin is also able to register a drone for a Pilot, under the Organisation that the Pilot has been assigned to. (See section 4.13)

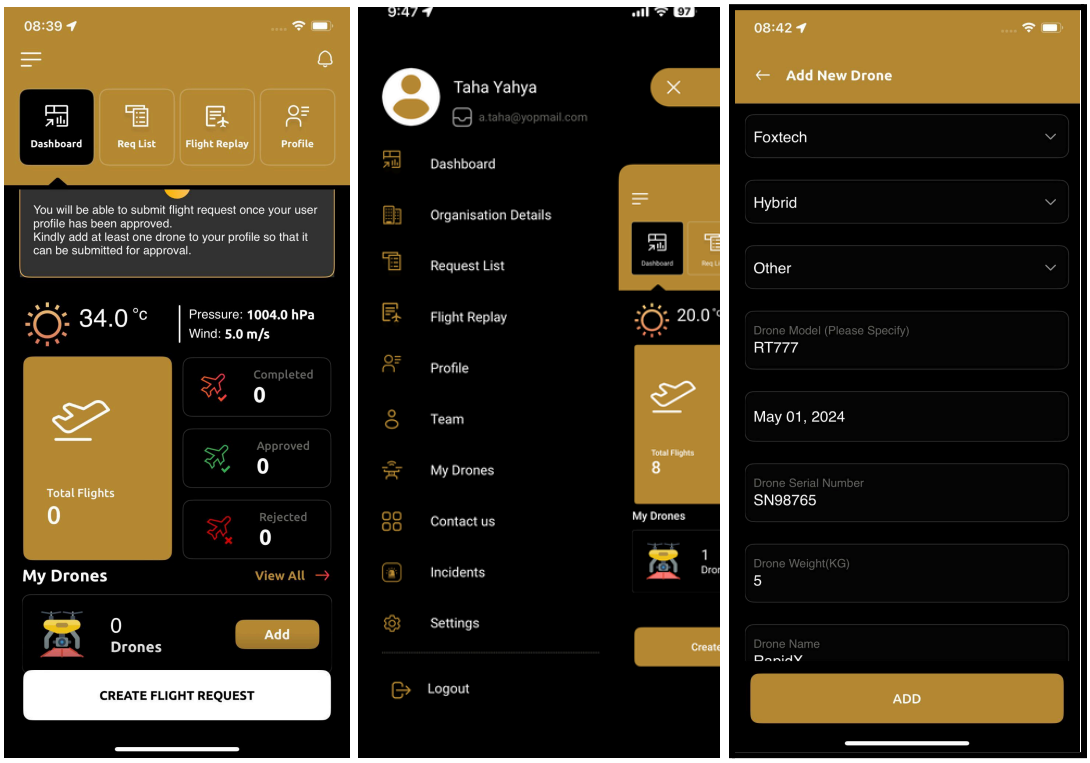


Figure 4-10(a): Drone Registration

1. Select **My Drones** from the menu options or the dashboard to be navigated to the My Drones page which lists all the drones registered under the pilot's profile.
2. Tap **Add** or **Add New Drone** at the bottom of the screen(User can alternatively tap **Add** from the Dashboard).

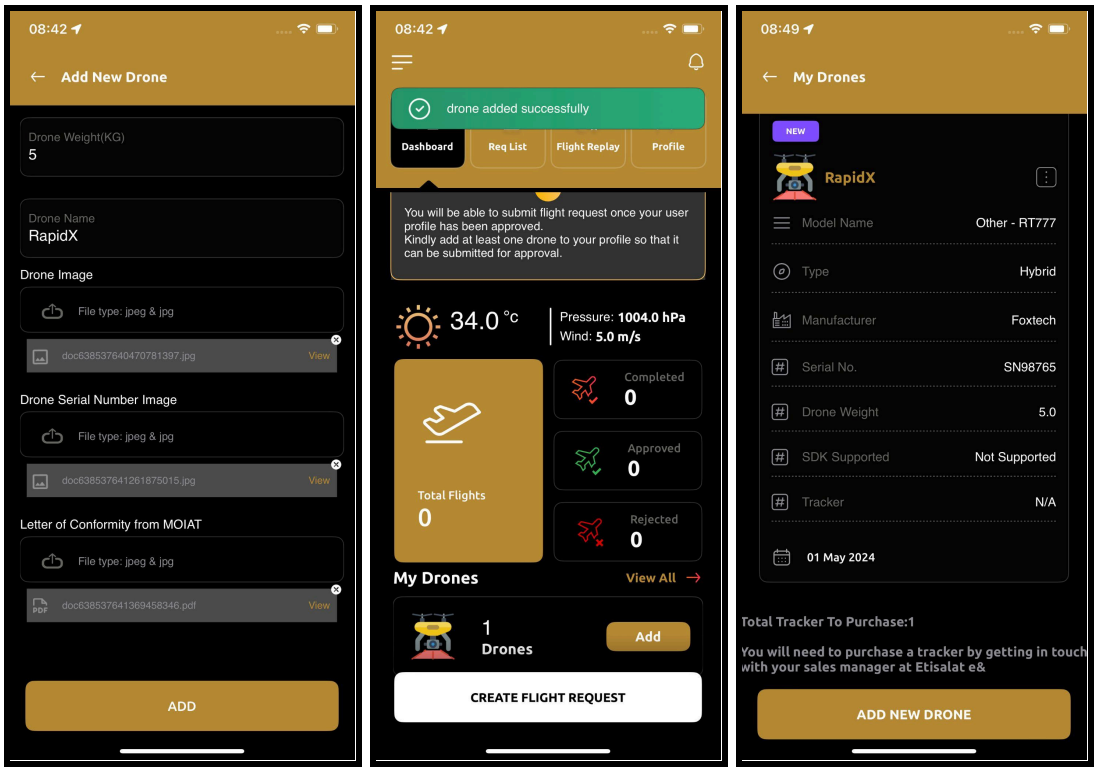


Figure 4-10(b): Drone Registration

3. Enter the following details of the Drone as seen above in Fig 4-10 a,b:
    a. Manufacturer
    b. Drone Type
    c. Drone Model
    d. Commission Date
    e. Drone Serial Number
    f. Drone Weight (kg) (Note: Max weight allowed when registering a drone for recreational operations is 5kg. Drone weight for commercial operations is unlimited, however, a risk assessment must be uploaded when registering a drone that weighs more than 25kg).
    g. Drone Name
    h. Upload Relevant Documents - Drone Image, Drone Serial No. Letter of Conformity from MOIAT, Risk Assessment for drones weighing more than 25kg - this is for commercial operations only).
4. Click **Add** to register the drone.

5. User will receive a notification that the **"Drone has been added successfully"** and the drone will now appear as **New** in the My Drones section of the pilots account until approved by the SA or Admin.
6. Click **My Drones** or **View All** to view drone status (see Fig 4-10(b) above).
7. The drone's status will change from **New** to **Approved** once the drone has been approved by the SA or Admin.

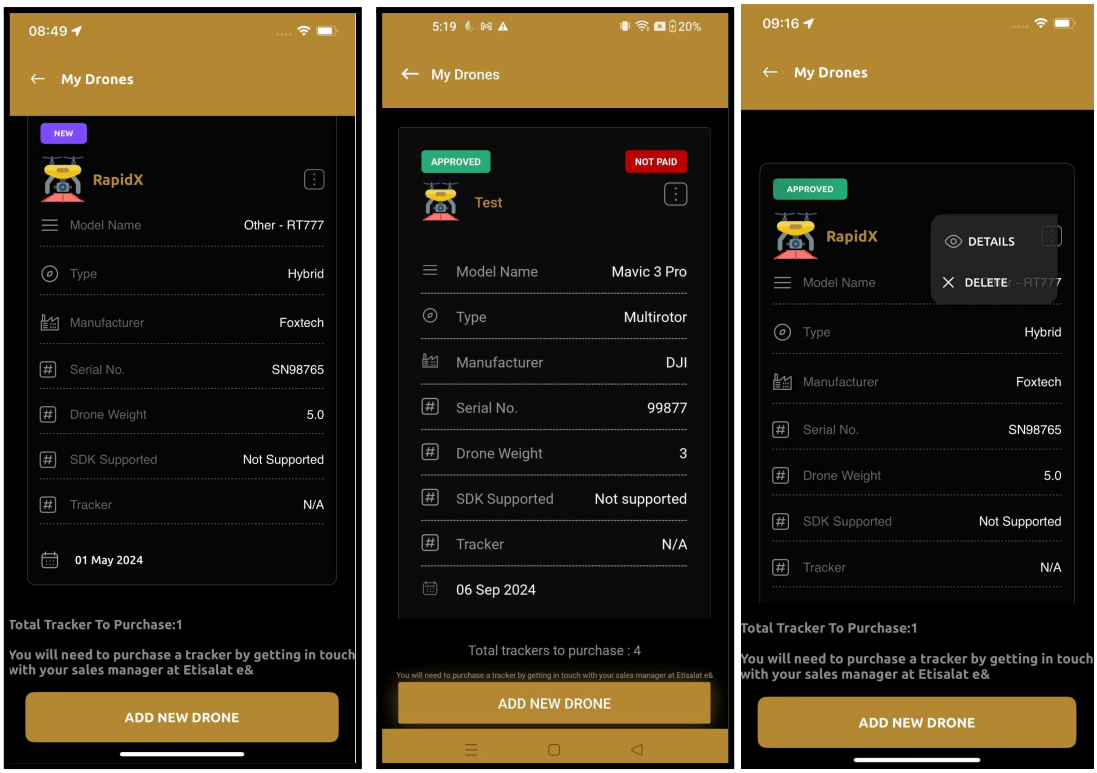


Figure 4-10(c): View/Delete Drone Details

8. Once Drone has been approved by the Admin, the status of drone will change from New to Approved and will be reflected in the drone details as seen above.
9. Once approved a payment request for the drone's registration will be sent to the operator via email. A payment of 200 AED is required for a drone being used for recreational purposes, renewed every 2 years. Whereas drones being used for commercial applications have a charge which varies according to the weight of the drone. See Section 5.13 for further details on price schedule.

Once payment has been processed payment status of drone will change from **NOT PAID** to **PAID** as seen above in Fig 4-10(c).

10. A note indicating the number of trackers to be purchased from e& will be highlighted at the bottom of the page. This directly corresponds to the number of drones registered under the pilots profile. **Note:** It is mandatory for a drone to be retrofitted with a tracker.
11. To view the Drone details as well as details of any other drones that may be registered under the Pilot's Account select **My Drones** from the menu options or **View All** in the Dashboard

As mentioned above, multiple drones can be registered under the Pilots account by following the above mentioned steps. All the registered drones assigned to the Pilot will be visible in the **My Drone** Section of the app as shown in Figure 6-10(b) and it is from here a drone is selected when creating a flight request.

12. To view drone details or to delete a drone from the profile select **My Drones** from the sidebar menu options or tap on **View All** from the My Drones section on the dashboard.

1. Tap on the **three dots** button to the right of the drone name as seen above in Fig 4-10(c). User will be provided with two options:
    a. Details
    b. Delete

11. Tap on **Details** to view the details of the drone.
12. Tap on **Delete** to delete the drone from the user profile.

4.11 Incidents

This functionality enables users to report any incidents that occurred during the flight or at the completion of the flight.

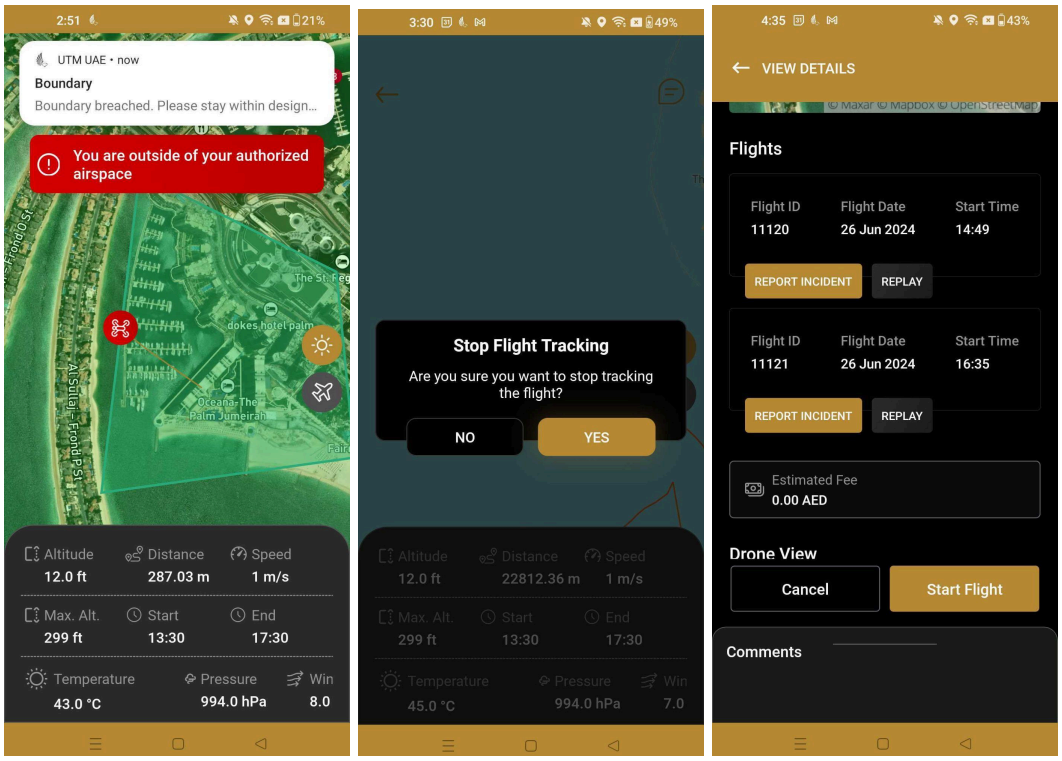


Fig 4-11(a): Incident Reporting

1. To report any incident(s) during the flight operation, tap on the **orange arrow** in the upper top left hand corner of the screen as seen in Fig 4-11(a) above. (Incidents can be reported at the completion of the flight request as well).
2. Select **Yes** in response to the pop up message to "**Stop Flight Tracking".**
3. Select **Report Incident** tab, and complete the required details of the incident in the form provided, such as the root cause, and description of what happened during the flight, as well as providing any supporting documents.

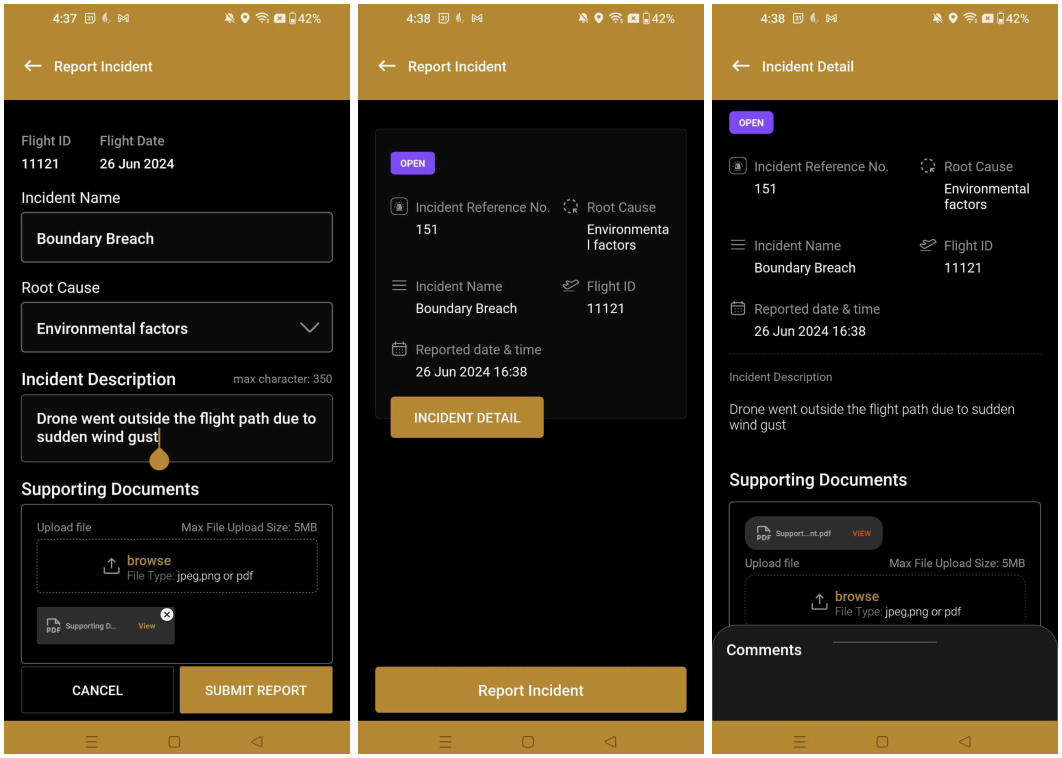


Fig 4-11(b): Incident Report

4. Click **Submit Report** when completed.
5. A notification stating " **Incident submitted successfully "** will appear, at which point the pilot has the option to resume flight again by selecting **Start Flight** at the bottom of the screen.
6. Flight can be paused to report another incident following the same steps above
7. Each incident reported during the flight(or upon completion of the flight) will have a separate **Flight ID** assigned as seen in Fig 4-11(b) above, and can be viewed by selecting **Incident Detail** or upon completion of the flight by selecting **Incidents** from the sidebar menu options.
8. Incident details can also be viewed via the **Request List** menu option.
9. Select **View Details** of the particular flight request in question, during which the incident occurred and then select **Incident Detail.**

4.12 Settings

This feature allows the users to change the language between the primary and secondary languages set by the SA in the customization panel.

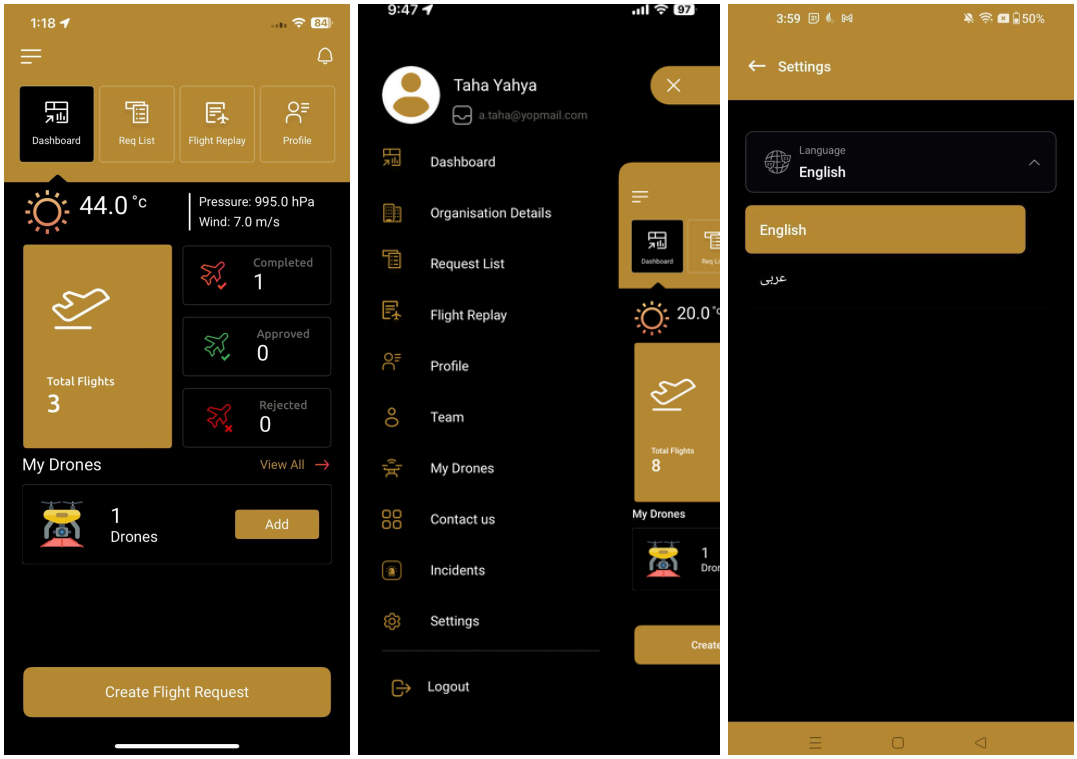


Fig 4-12(a): Settings - Language

1. Select **Settings** from the sidebar menu options.
2. Select the preferred language from the dropdown menu displayed in the Settings page.
3. Users can select **English** or the **Arabic** (Secondary) language.

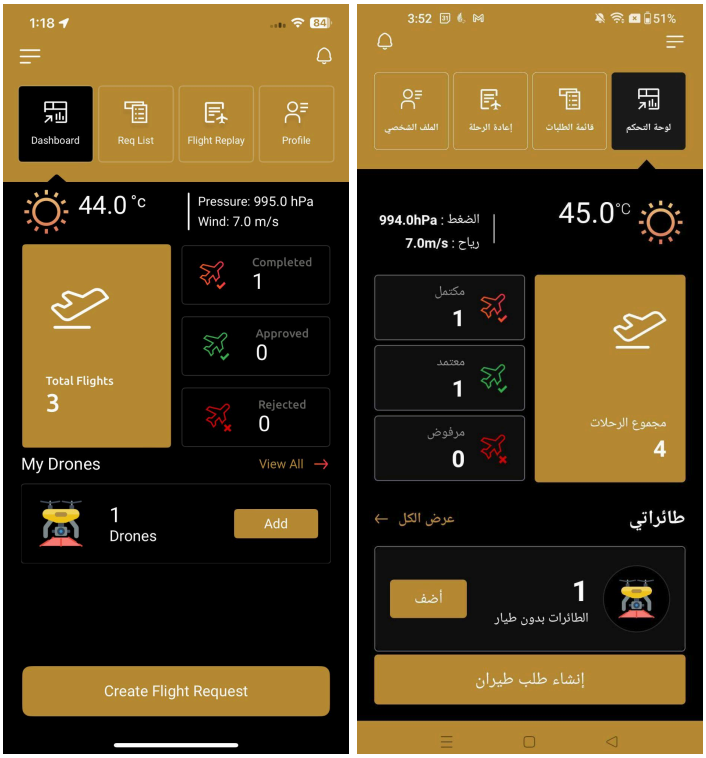


Fig 4-12(b): English and Arabic Language

4.13 Emergency and Termination

AstraUTM provides mechanisms to address unexpected scenarios during drone operations. This section outlines the emergency response and termination of drone activities, ensuring a straightforward approach to maintaining safety in the airspace and effective handling of critical circumstances.

4.13.1 Emergency Declaration

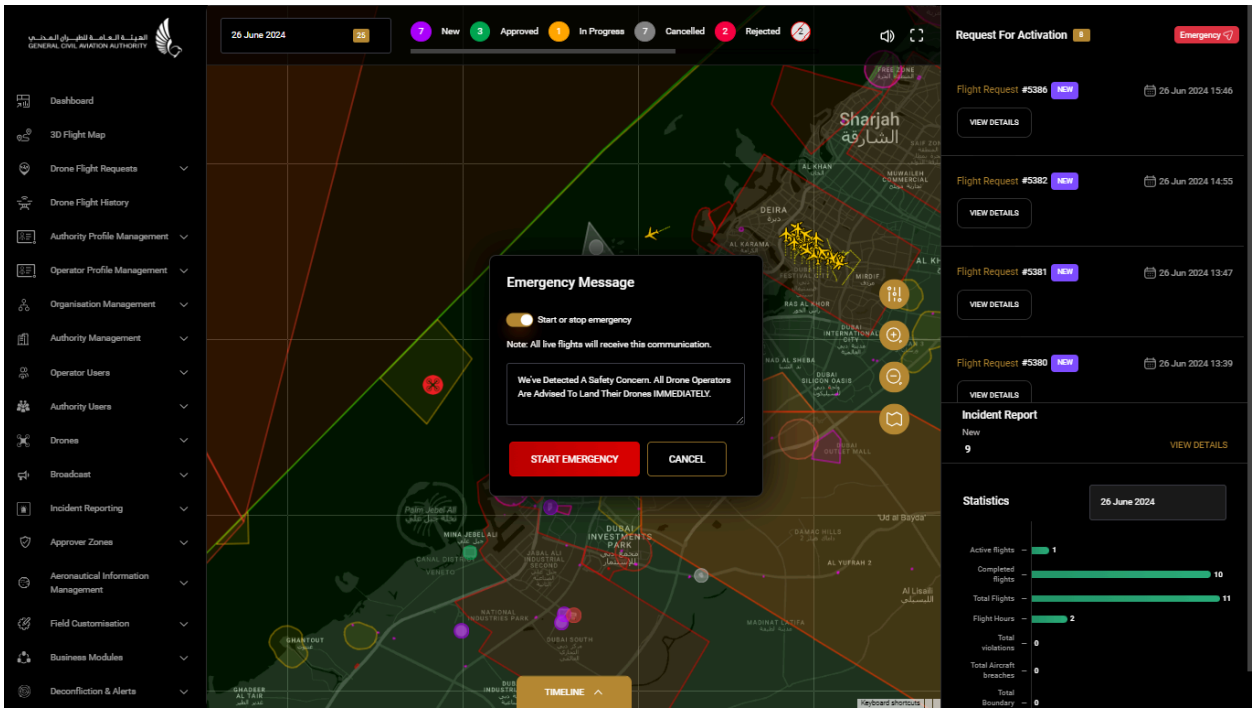


Fig 4.13(a): Start Emergency Declaration

In the event of an emergency being declared by the Super Admin, all users in the system, both Authority and Operator, will receive a notification about it.

1. Click the **Emergency** button in the upper right hand corner of the screen to declare the Emergency.
2. Tap on **"Start Emergency"** to proceed with notifying Operator users.

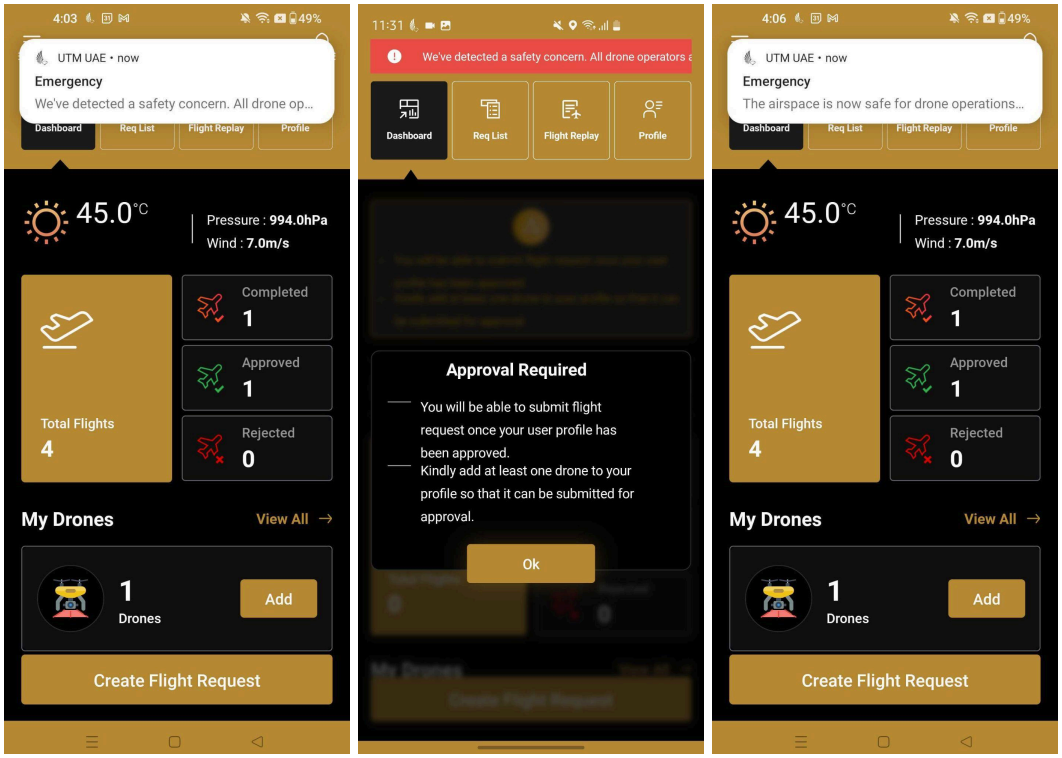


Fig 4.13(b): Emergency Declaration Notification for Landing and Resuming Flights

3. Operator Users will see a distinct red banner across every screen of the mobile application. This banner not only signals the presence of an emergency but also provides the specific reason for its declaration. It's a constant reminder, ensuring all users are consistently informed. Additionally, the banner remains in place on the application screens until the Super Admin confirms the resolution of the situation and normal operations can resume.

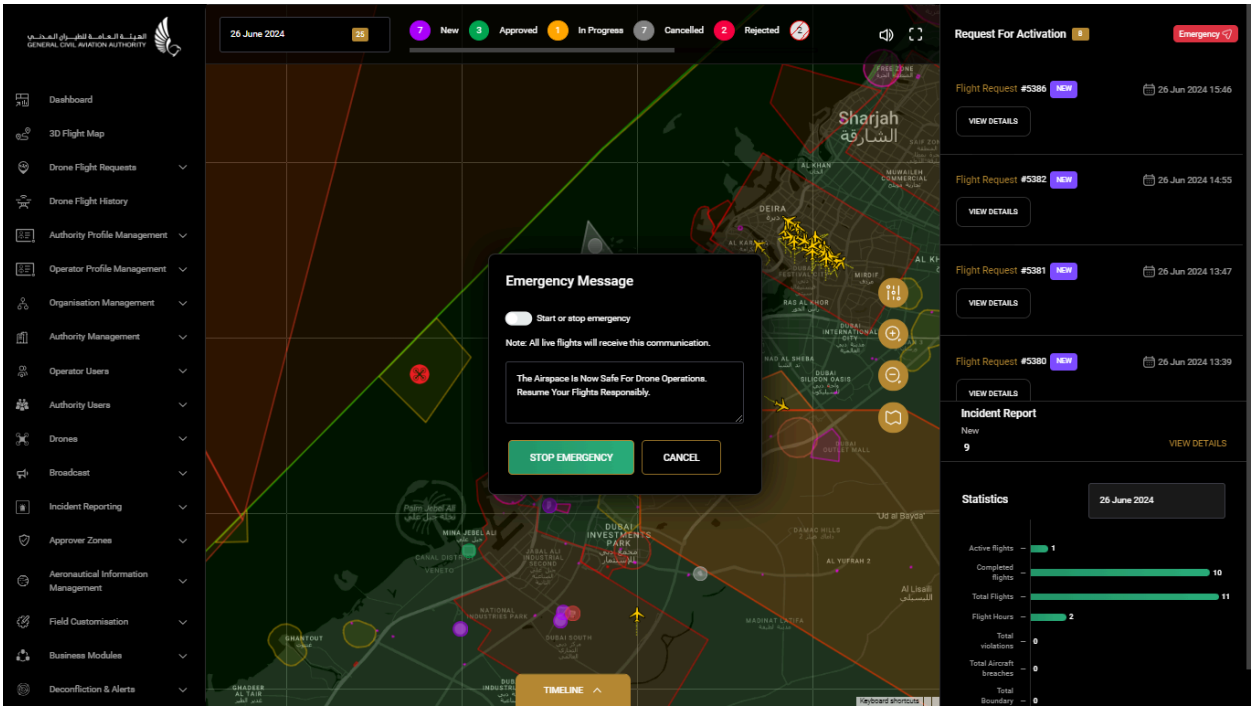


Fig 4-13(c): Stop Emergency

1. To end the emergency, re-click on the **Emergency** button in the upper top right corner.
2. Tap on **"Stop Emergency"** to end emergency declaration.

4.13.2 Termination

The Approver User has the authority to end a specific flight, while the Administrator can halt flights within a designated area. If a flight is terminated, operators are informed, their flight status updated to "Terminated", and a full-screen notification appears. This notification requires the operator's acknowledgement before further use of the App. Notifications of termination are also relayed through the communication module, where operator acknowledgements are recorded.

5.0 Operator Role - Web

The following section outlines the UTM workflow sequence for Operators via the Web (See Section 4 for UTM access using the Mobile App). There are two types of Operators: the Organisation Manager and Pilot (Recreational or Commercial). Both have similar access to the system, but the Organisation Manager has additional features which enable them to register the organisation's pilots (since commercial pilots cannot register themselves), as well as manage the organisation's details.

Often, legal entities other than individuals (e.g Hobbyists or Recreational drone pilots), wish to use drones for commercial or official purposes. For this to occur the legal entity or organisation must first be registered with the UTM. This is done by the Organisation Manager who is assigned to manage the drones and pilots (Commercial) that the organisation is legally responsible for. The responsibility of managing and maintaining the registry of pilots, drones, flight requests as well as the coordination with Authorities and Approvers, is often assigned to a single user but is not a restriction - multiple users can be designated as well.

5.1 Registration

For initial access to the UTM Web application all Operators must first sign up for an account using their **UAE PASS**. (See Section 4 for sign up using Mobile App). Recreational Pilots can register their account directly, while Commercial Pilots must contact their respective Organisation Manager for account creation (See Section 5.6).

5.1.1 Recreational Pilots

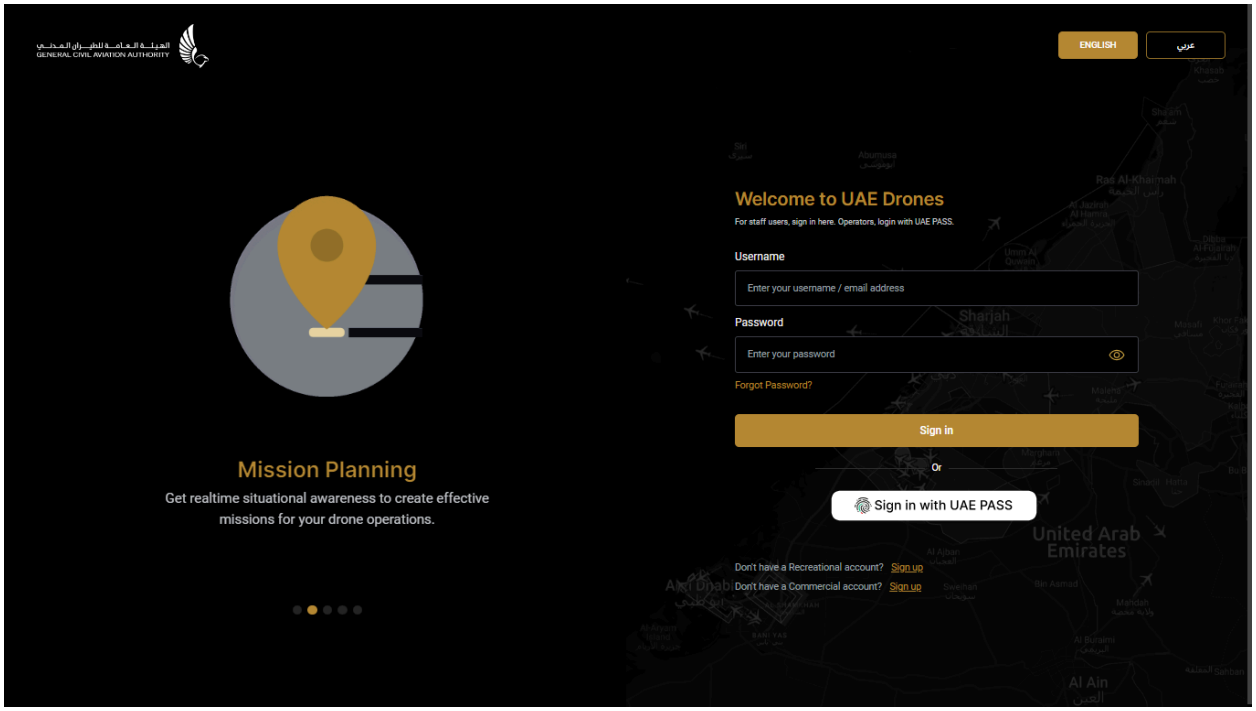


Figure 5-1(a): AstraUTM Web Sign-In Screen

1. Open the URL **https://drones.gov.ae**
2. Click **Sign up** at the bottom of the screen to create a new **Recreational Account.**
3. Users will be directed to sign up with their **UAE PASS** as seen below.

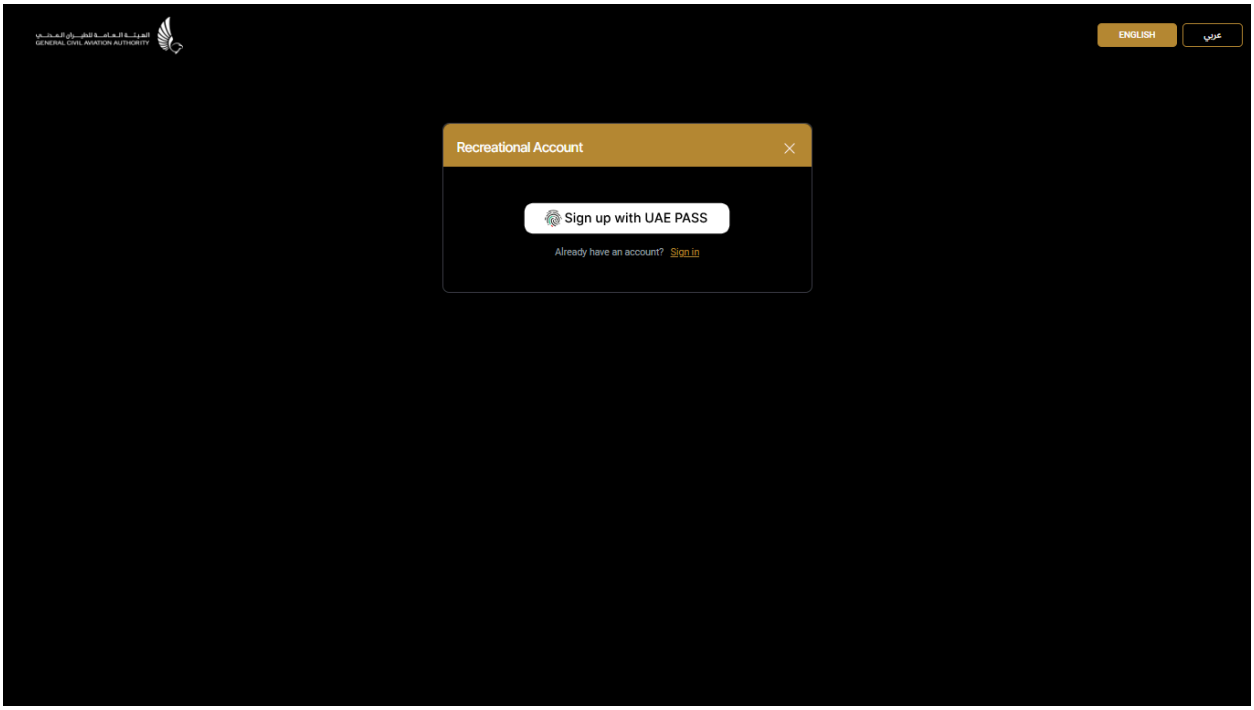


Figure 5-1(b): Sign-up with UAE PASS- Recreational

4. Click **Sign-up with UAE PASS** to be directed to the UAE PASS login page.

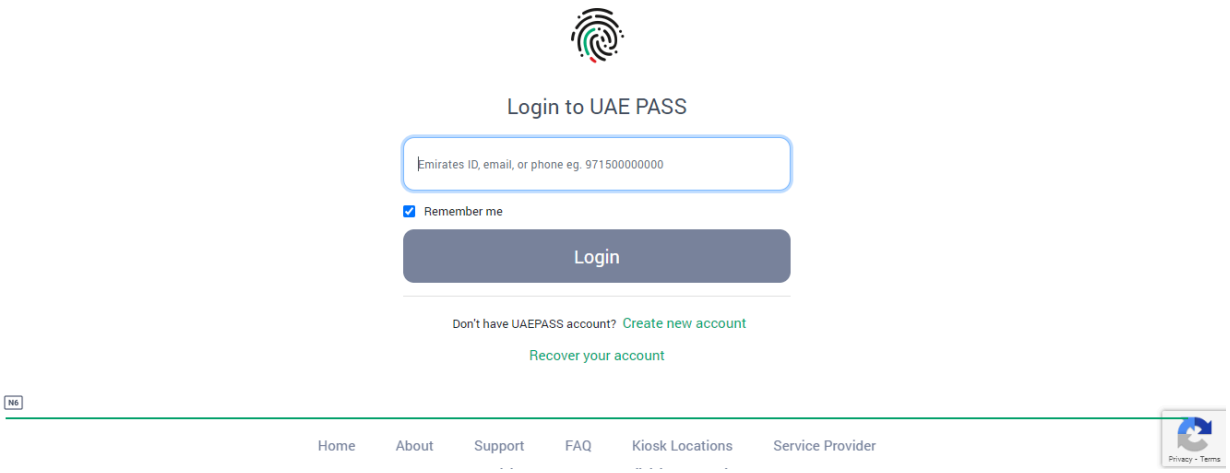


Figure 5-1(c): Login to UAE PASS page

5. User must login through UAE PASS using their Emirates Id, email, or mobile number. This will trigger an authorisation request to their UAE PASS device(UAE PASS App). For users who don't have a UAE PASS, a UAE PASS account must be created before registering on UTM.

6. Once users have been authorised by the UAE PASS App using their pre-configured PIN or fingerprint or Face ID, users will be redirected back to the UTM system to complete the registration form as seen below in Fig 5-1(d).

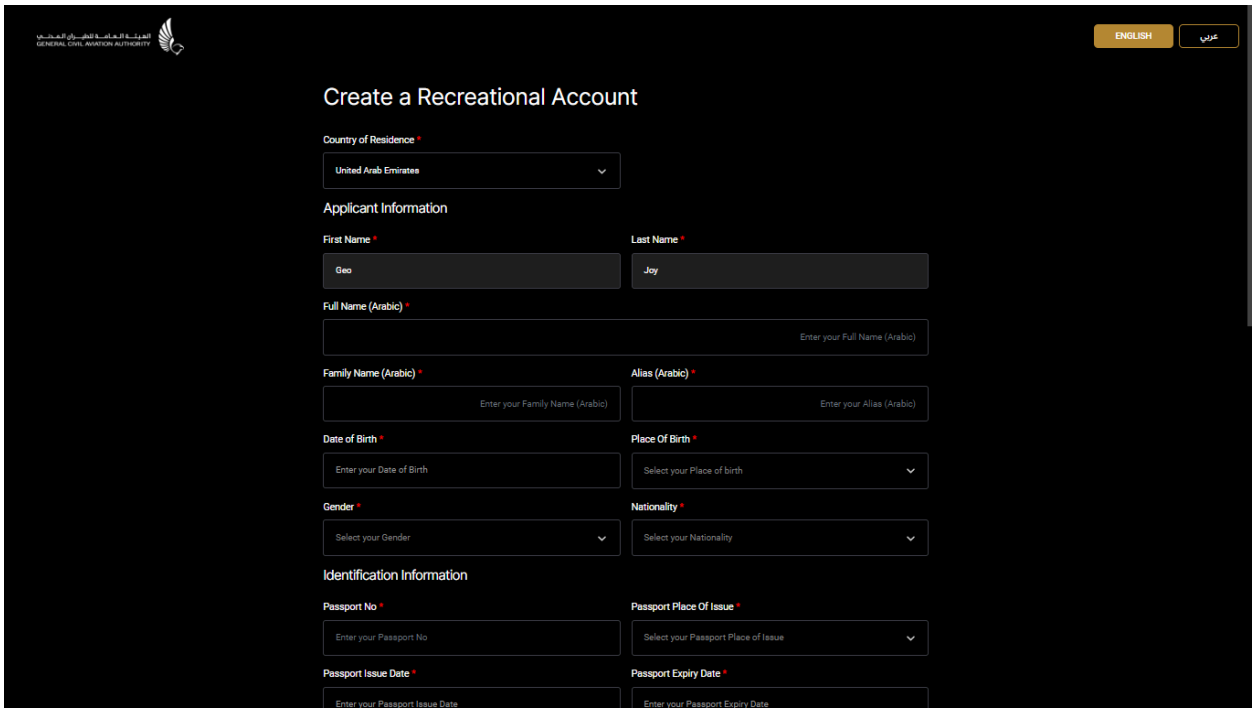


Figure 5-1(d): Registration Forms - Recreational Pilot

7. If users have been verified by the UAE PASS portal the forms will auto populate with relevant information of the user, which includes their **Emirates ID.**
8. If the user is not verified they will not see their Emirates ID.

   Note: Commercial/Government pilots should contact their respective Organisation Manager for account creation which is done via the Web or Mobile Application.
9. Enter the remaining information and attach any supporting documents.
10. Agree to **Terms and Conditions and Privacy Policy** , then click **Continue**.
11. Upon completing the forms the system will auto-log the user into the UTM Dashboard as seen below. User must then wait to be approved, as well as register and gain approval for at least 1 drone before proceeding to create flight requests.(Section 5.7 - Drones) (Note: Pilot and drone registration

payments are required to be processed once pilot user and drone have been approved).

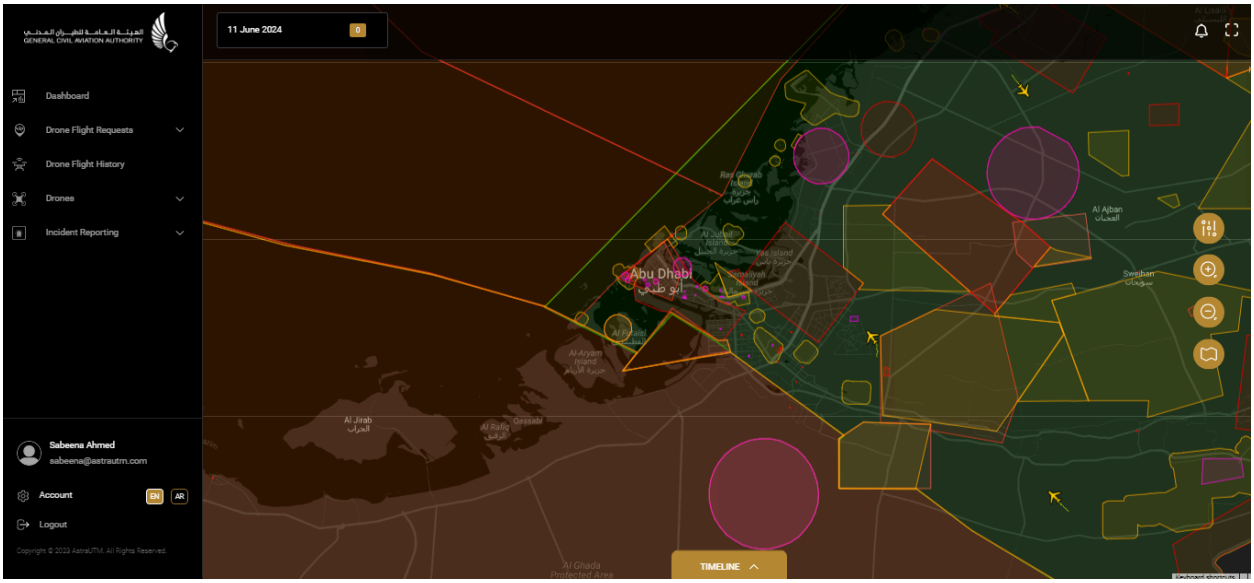


Figure 5-1(e): UTM System Dashboard - Recreational Pilot

5.1.2 Commercial Organisation

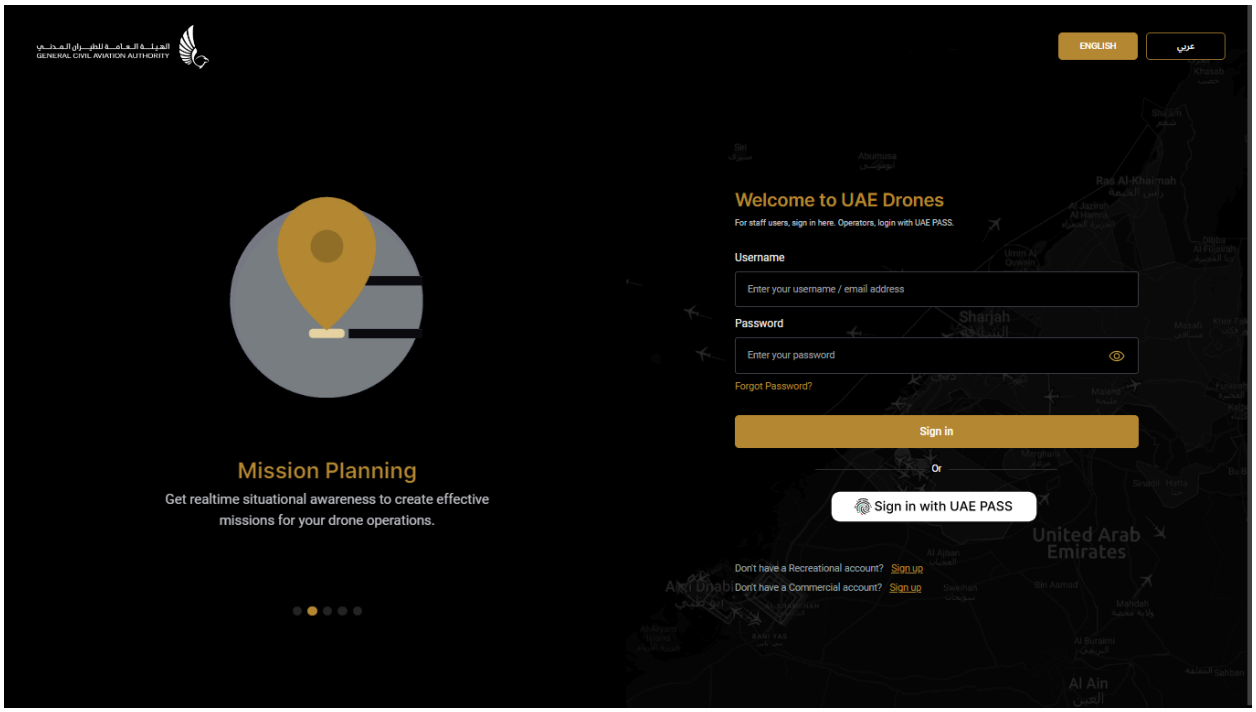


Figure 5-1(f): AstraUTM Web Sign-In Screen

1. Open the URL **https://drones.gov.ae**. Commercial pilots can access UTM once the organisation they will operate under has been successfully registered and an account has been created for the pilot (see Section 5.6). This process is managed by the Organisation Manager.
2. Click **Register Here** at the bottom of the screen to create a new **Commercial Organisation Account**.
3. User will be directed to register the Organisation with their **UAE PASS** as seen below.

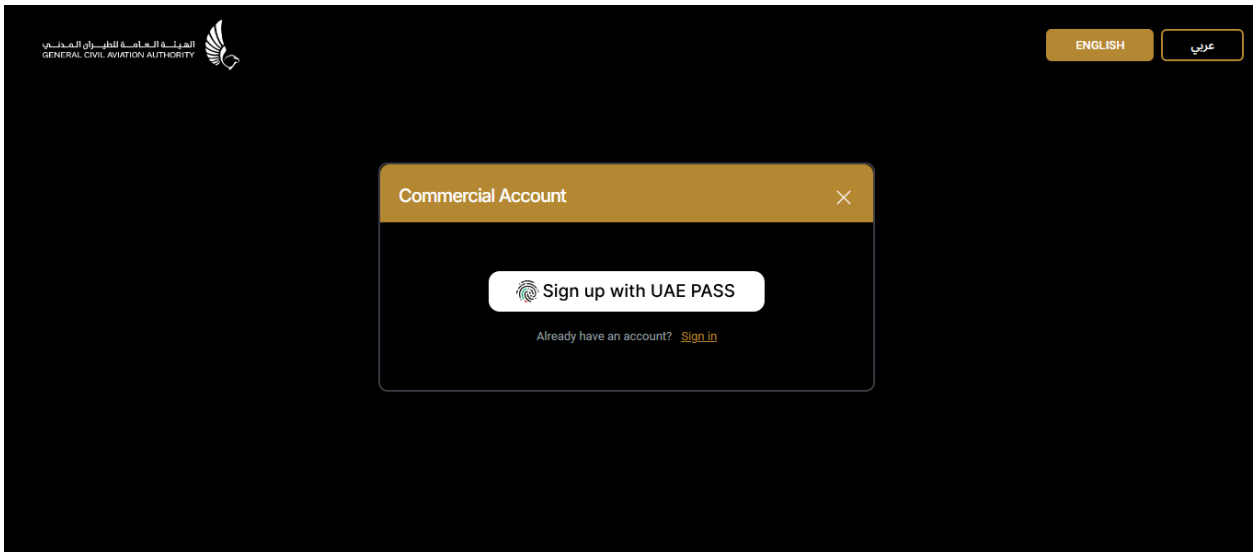


Figure 5-1(g): SIgn-up with UAE PASS - Commercial Organisation Account

4. Click **Sign up with UAE PASS** to be directed to the **UAE PASS Login** page.

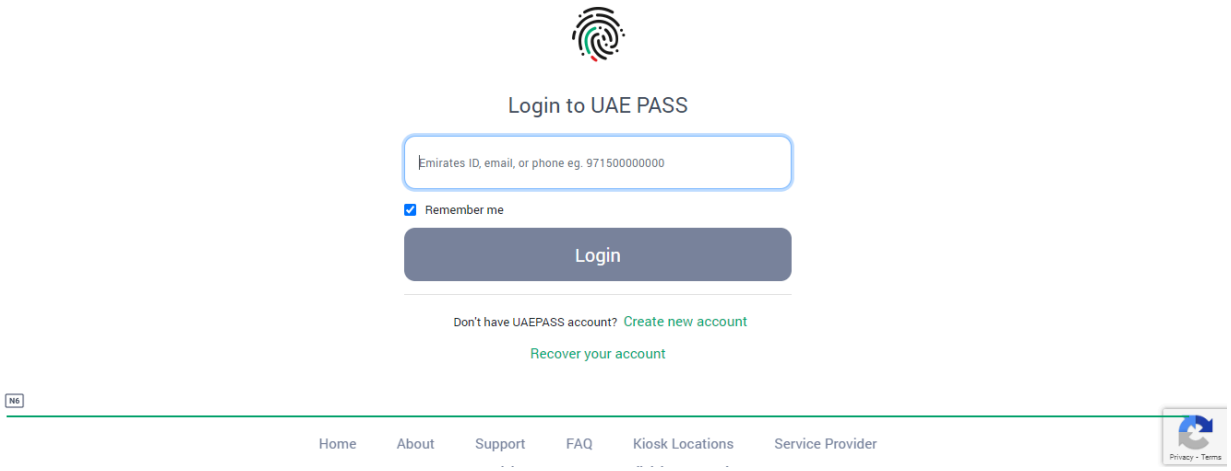
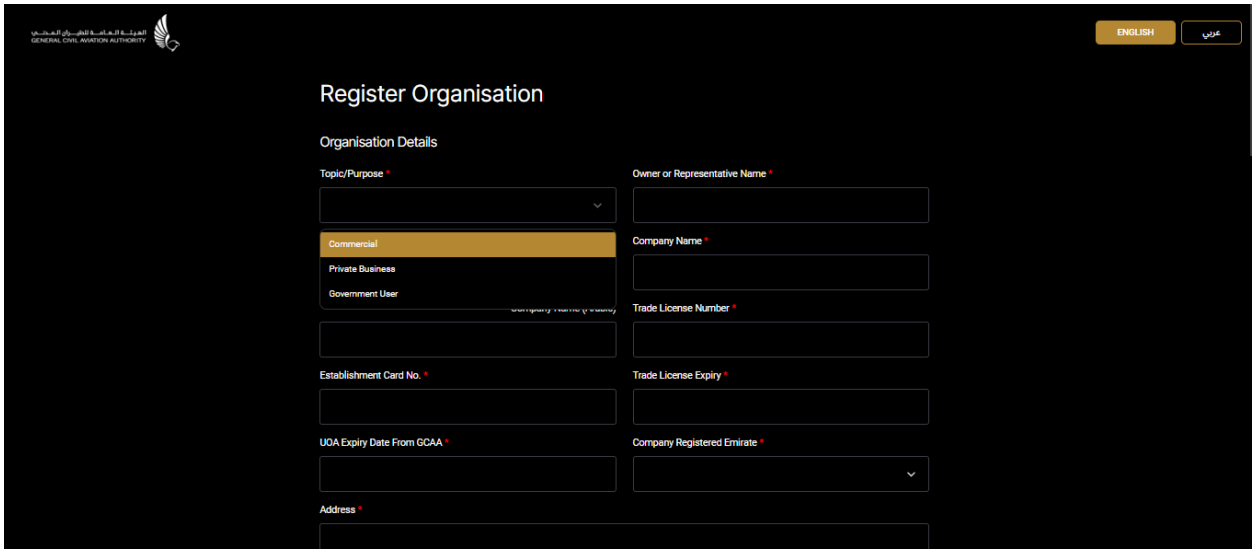


Figure 5-1(h): UAE Pass Log-in Page

5. User must Sign-in through UAE PASS using their Emirates Id, email, or mobile number. This will trigger an authorisation request to their UAE PASS device(UAE PASS App). For users who don't have a UAE PASS, a UAE PASS account must be created before registering on UTM.
6. Once users have been authorised by the UAE PASS App using their pre-configured PIN, fingerprint or Face ID, users will be redirected back to UTM to complete the registration form as seen below in Fig 5-1(i).



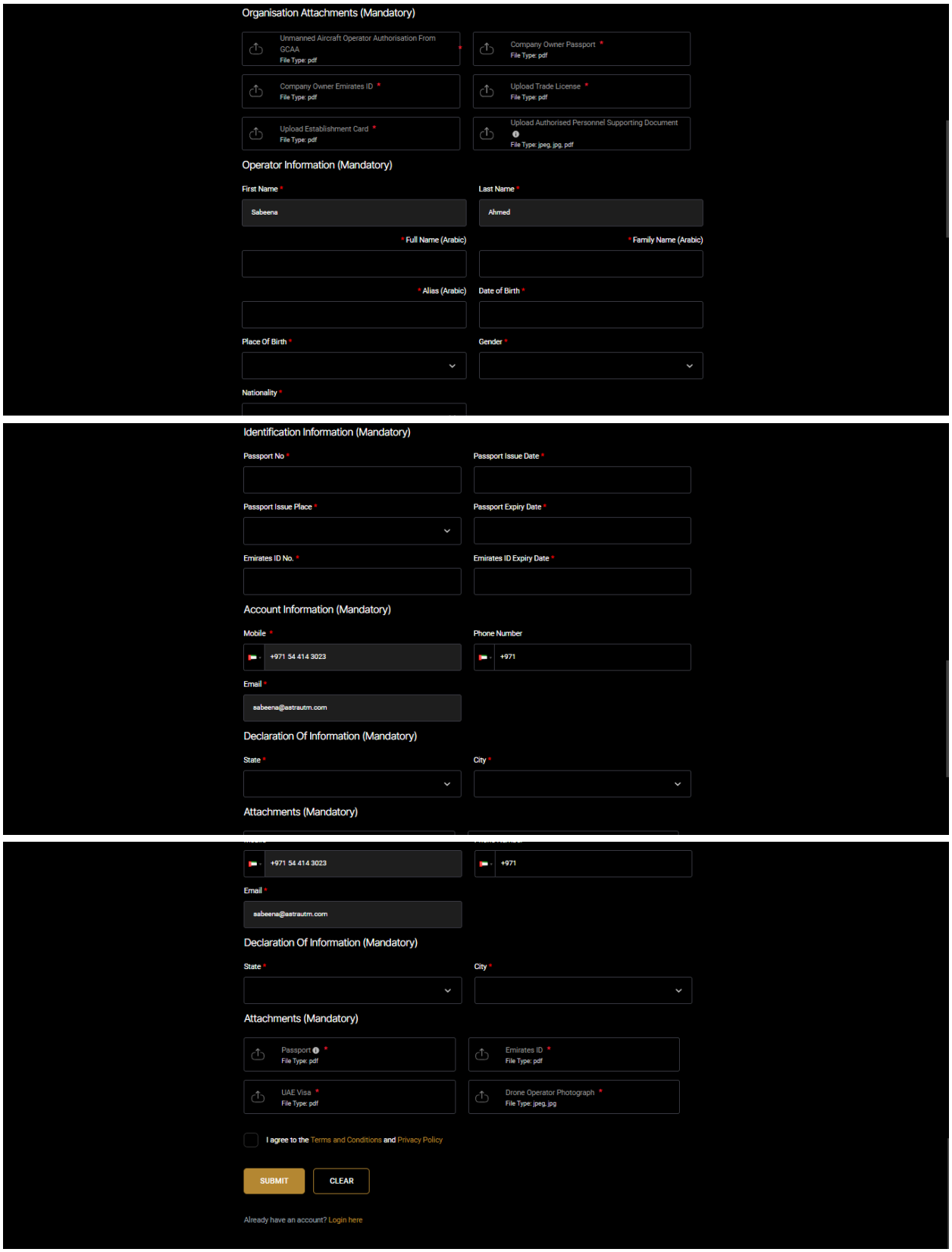


Figure 5-1(i): Registration - Commercial Organisation

7. If users have been verified by the UAE PASS Portal the forms will auto populate with user's relevant information which includes their **Emirates ID**.
8. If the user is not verified they will not see their Emirates ID.
9. Select the type of organisation to be registered from the drop down menu labelled **Topic/Purpose**. Select either:
    a. Commercial
    b. Private Business or
    c. Government User
10. Fill in the remaining required information and upload supporting documents.
11. Agree to **Terms and Conditions** and **Privacy Policy** , then click **Submit.**
12. The Organisation Manager will be notified by email confirming the request for registration has been received and is now under review.
13. Once organisation and user have been approved by the SA, user will be notified that they can now sign in with UAE PASS (see Section 5.2 and 5.3).

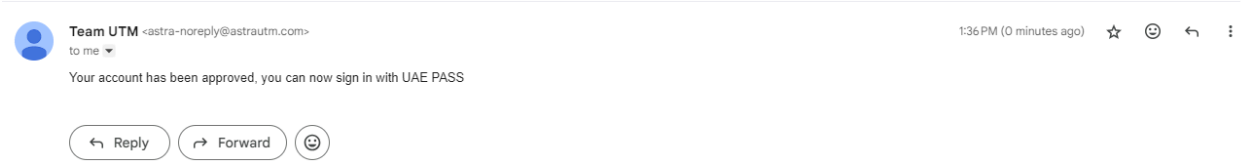


Figure 5-1(j): Approval email notification

Commercial/Government Pilots

Once the organisation has been approved and successfully registered into the system the organisation manager can proceed to create an account for the pilots within that organisation. (See Section 5.6 for account creation process).

1. Select **Team** from the menu options to create a commercial pilot's account.
2. Enter the required details of the pilot and click **Submit**.
3. An automatically generated email will be sent prompting the pilot to link their newly created account with UAE PASS, whilst at the same time the pilot's details will be sent to the Admin for approval.
4. has been approved by the Admin, An email notifying the pilot of successful UTM account creation will be automatically generated prompting the pilot to link the account with UAE PASS as seen below in Fig 5-1(k).

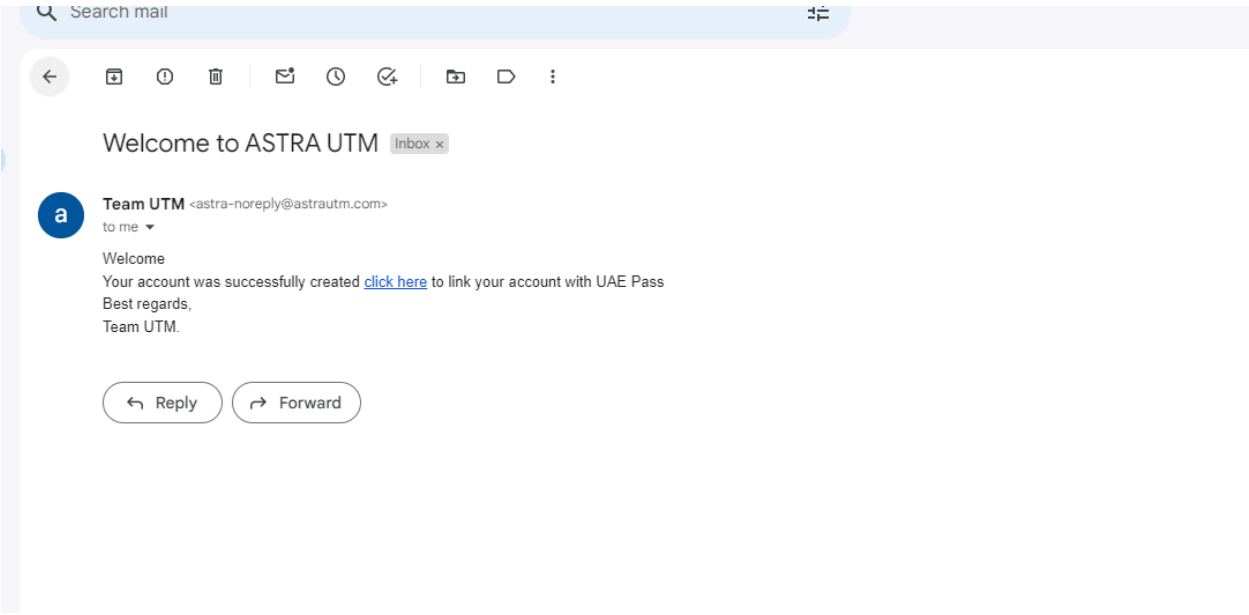


Figure 5-1(k): Account Creation email - Commercial Pilot

5. Pilot clicks on **click here** in email, to be directed to the **Login page for UAE PASS** where they will login using their Emirates Id, email, or mobile number. This will trigger an authorisation request to their UAE PASS device(UAE PASS App). For users who don't have a UAE PASS, a UAE PASS account must be created before registering on UTM.

6. Once users have been authorised by the UAE PASS App using their pre-configured PIN or fingerprint or Face ID, users will be directed straight to the commercial pilot's UTM dashboard, the main landing page of the system.

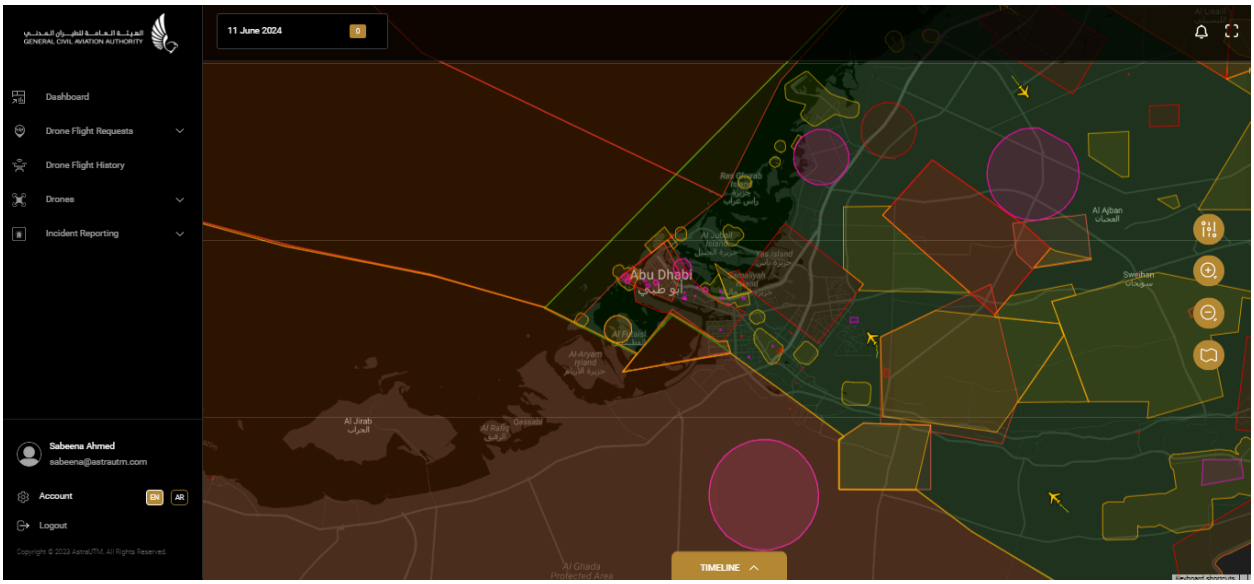


Figure 5-1(l): UTM System Dashboard - Commercial Pilot

5.2 Sign-in with UAE PASS

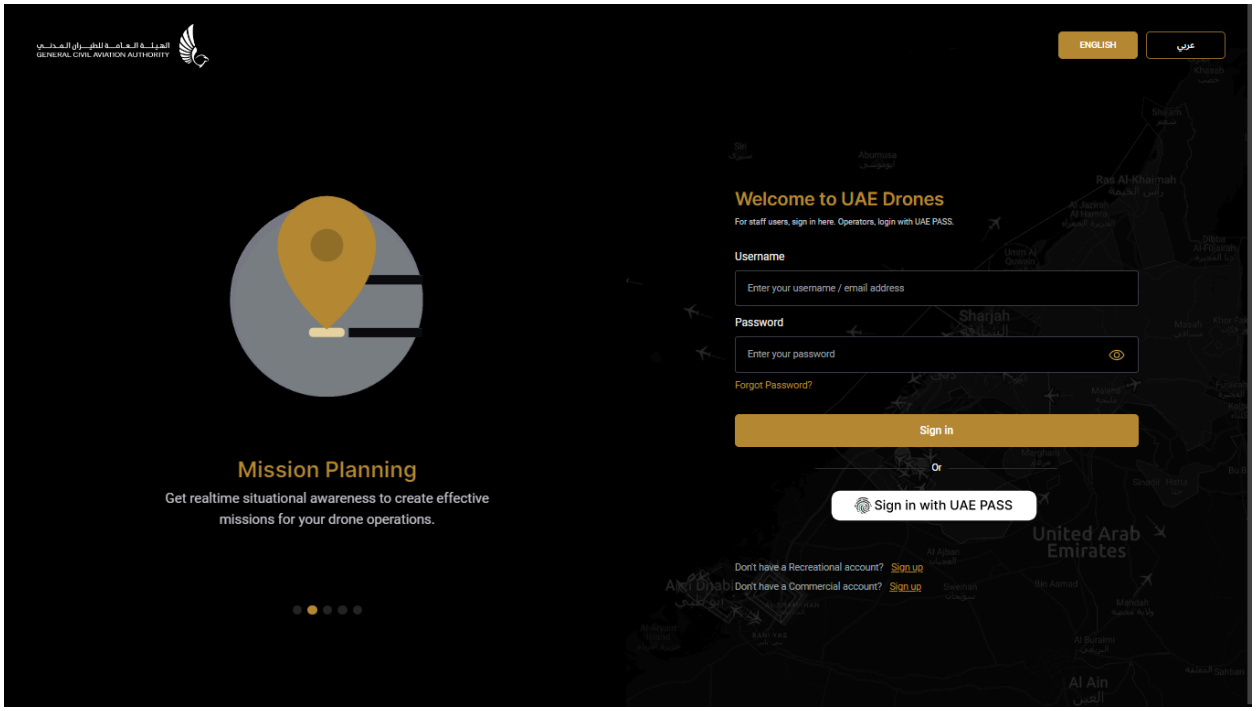


Figure 5-2(a): UTM Web Sign-in with UAE PASS - Operators (Pilots and Organisation Manager)

1. Open the URL https://drones.gov.ae
2. Operator users can **Sign in with UAE PASS** once they have an account

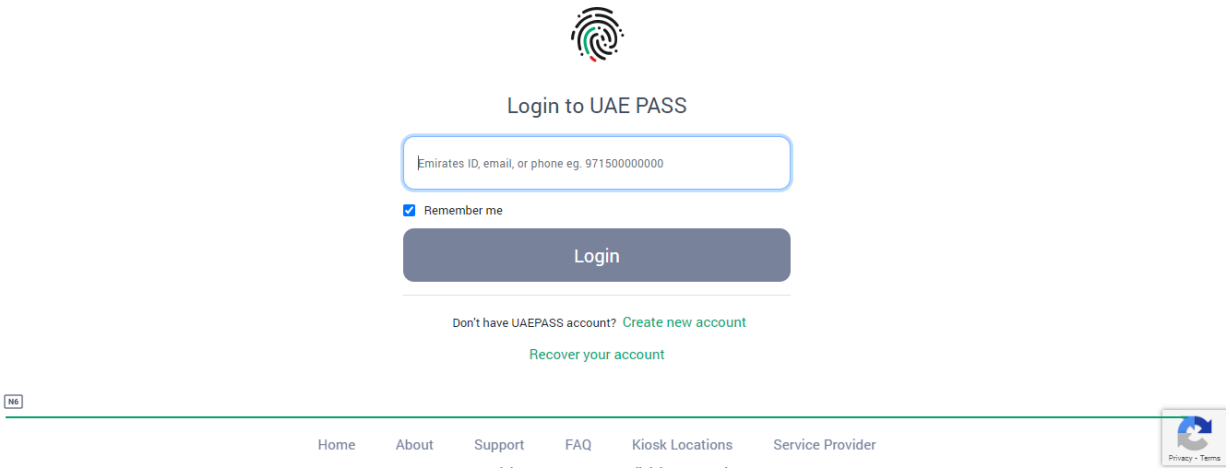


Figure 5-2(b): UAE Pass Log-in Page

3. Enter either **Emirates ID, email or phone number** and click **Login**.

4. Once an operator is authorised by the UAE PASS App using their pre-configured PIN or fingerprint or Face ID, the system will auto log the operator into the UTM dashboard, the main landing page of the system as seen below.

Figure 5-2(c): UTM Operator Dashboard- Organisation Manager

5.3 UTM Home Dashboard & Navigation

The UTM Home Dashboard is the main page of the application where you can see an overview of the airspace and UTM features and functions that assist the Operators in navigating the system.

Figure 5-3(a): UTM Organisation Manager Dashboard

The **Dashboard** contains a centred map displaying the region's configured airspace with its various colour coded airspace zones (eg Fly zone, No Fly zone, Prohibited zone, Restricted zone, Temporary Danger Zone etc) and live air traffic (manned & unmanned) in the region.

Map Controls are available on the right , along the top and bottom, and right side of the dashboard. On the left are the Menu options, at the top is the Date Selection Tool, and Timeline Bar can be found along the bottom.

5.3.1 Central Map Display

Once logged into the system, a map will appear in the centre of the UTM Home Dashboard providing a 2D representation of the geographical area.

Figure 5-3(b): UTM Dashboard - Mapview with Airspace Zone Information

1. Click and drag the **Map** to move to the desired location.
2. Click on the maximise **icon** on top right to view the map in full screen.
3. Move the cursor (trackpad) with two fingers to either the left or right or pinch it to zoom in or out.
4. Click on any coloured **Airspace zones** to obtain more information on a particular zone (such as type of zone, start/end time of zone, upper/ lower limits of zone).
5. Click on the **Manned Aviation Traffic icon** to bring up the latest reported data regarding its identity, latitude, longitude and altitude.

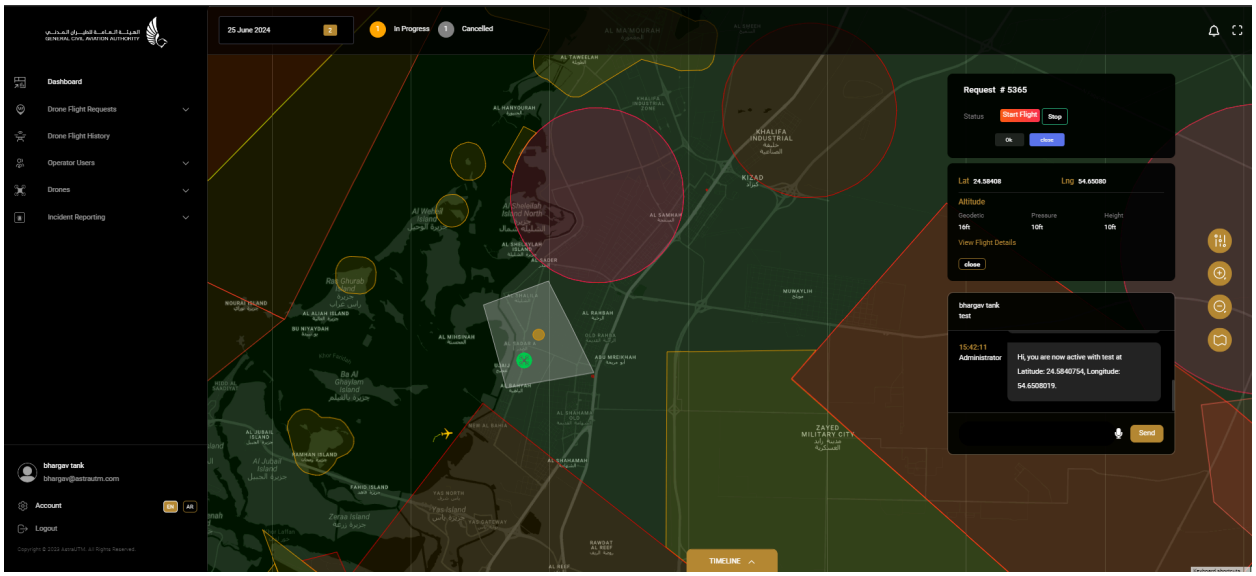


Figure 5-3(c): UTM Dashboard - Live Drone Flight

6. Click on **Drone icons** to display a particular drone's flight details. The pop-up will display the comms module which contains all communication that took place, via text and/or voice messages, between the administrator and drone pilot during the flight. This includes any alerts and notifications generated by the system in case there is an altitude/boundary breach.

Figure 5-3(d): Map Elements Visualisation - I

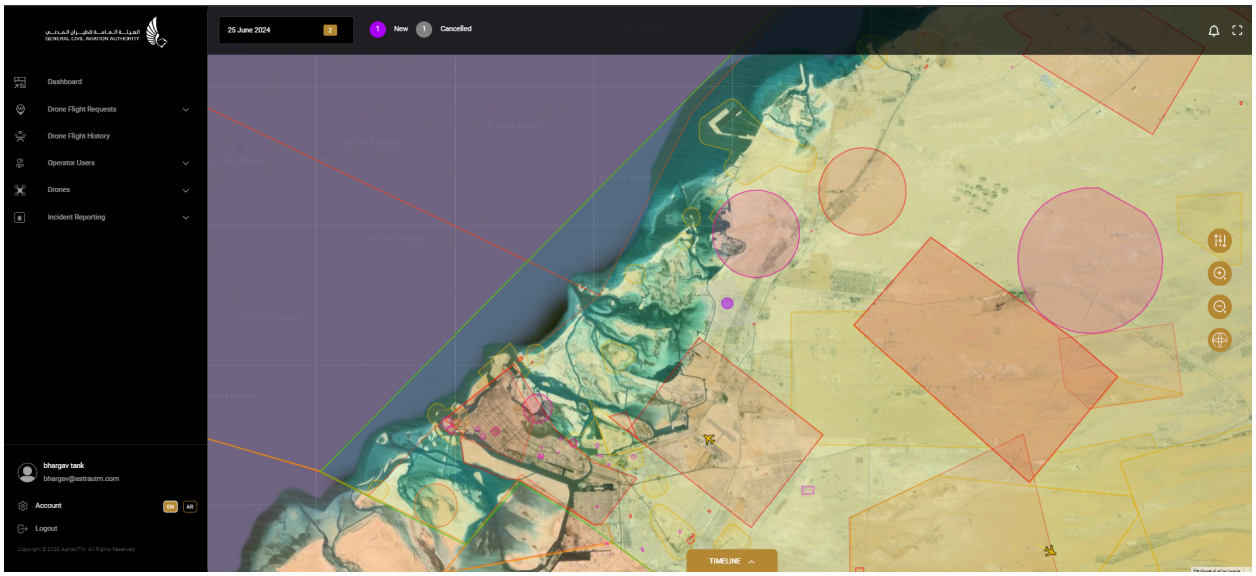


Figure 5-3(d): Map Elements Visualisation - II

To the right of the map interface are the Map Display Control Options which allow the user some flexibility on how the map is presented and which elements are displayed or turned-off.

1. Click the **Map Elements Display** button to enable the following functions:
    a. Toggle ON/OFF the Map Elements Display button to visualise the manned and unmanned air traffic data. The User can view the air traffic

at different playback speeds (only available when viewing non-current data). The available options are normal speed **(1x)**, twice normal **(2x)** or 4 times normal **(4x).**

b. Toggle ON/OFF the **METAR** button to view the Weather data on the map. Clicking the weather station icon on the map allows the Administrator to see the current Meteorological Aviation Report (METAR) and/or TAF (if available) information. This report provides the users with critical, time relevant weather information for a particular station as seen in the image below.
c. Toggle ON/OFF the whole airspace and individual airspace zones
d. Click **+ /-** button to zoom in and out of map
e. Click the **Map Style Toggle** button to toggle between Dark & Satellite mode (See Fig 5-3(d)).

5.3.2 UTM Menu Options

Menu on the left allows operators to navigate and access the various features in the UTM system. Access to these menu options is as per roles and user profiles. The main options available are mentioned below. Further down is the option to **Account** and **Log out.**

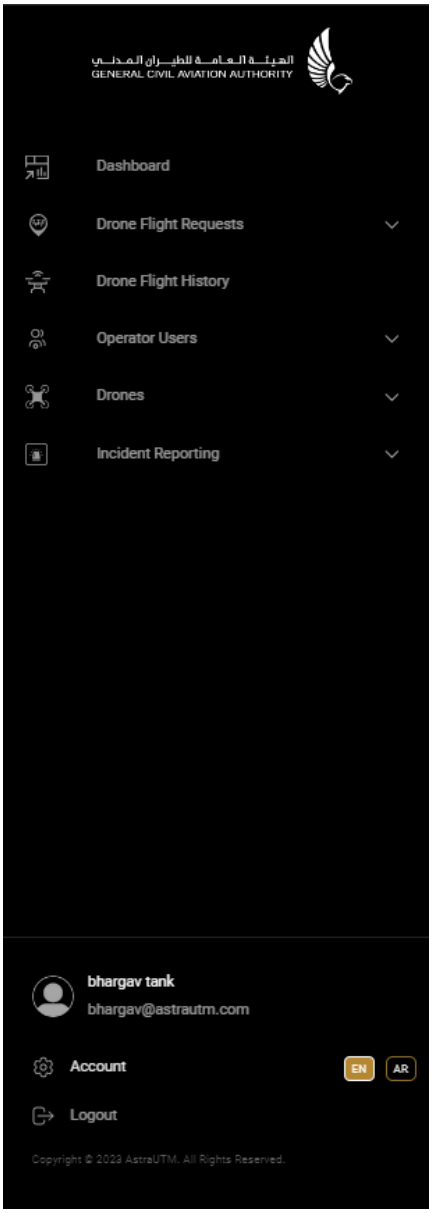


Figure 5-3(e): Organisation Manager Menu Options

The menu options for the Organisation Manager are as follow:

a. Dashboard
b. Drone Flight Requests
c. Drone Flight History
d. Operator Users
e. Drones
f. Incident Reporting

Note: Dashboard menu options will be restricted depending on role based access. For eg Organisation Managers have access to the "Operator Users" feature, whereas individual recreational and commercial pilots don't. Reason for this is that Organisation Managers, who can also be operators are responsible for managing the pilots, drones and flight requests for that particular organisation.

5.3.3 Date Selector & Drone Flight Summary Status

At the top of the dashboard the user has access to the **Date Selector** tool which allows the user to view the total number of drone flight requests, their status and the airspace zones for that particular day. On login, the system defaults to the current date. However this tool can be used to temporarily navigate to a specific date (i.e. single day of the month of the year) whereby the dashboard updates automatically to visually depict and display the drone activity for that date. This date can be selected in the past (to view historic activity) or in the future (to view planned activity).

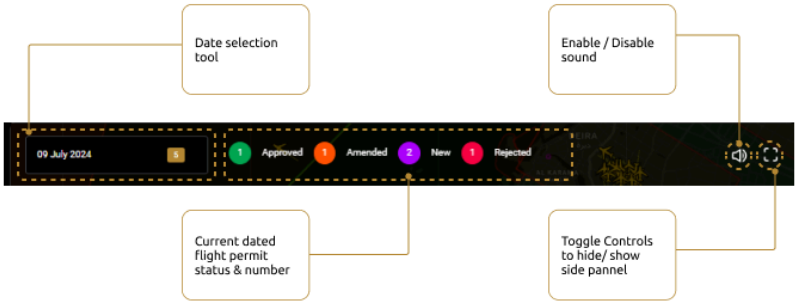


Figure 5-3(f): Date & Drone Flight Summary Status

The status of the drone flight requests for that day are displayed to the right of the date selector and are colour-coded and summarised by the number of flights within that status. The different types of flight requests are distinguished by the colour coded bar along the bottom of the dashboard and include those that are or were and will be in progress, as well as any new or approved, amended, rejected, cancelled, completed and terminated flights for that particular day.

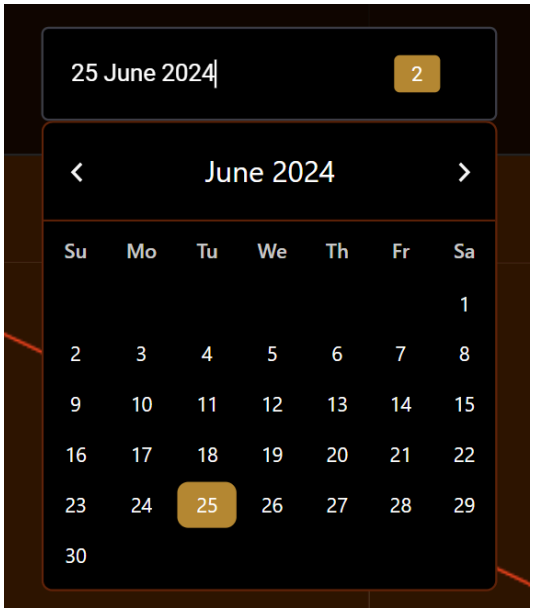


Figure 5-3(g): Date Selector

1. Click the **Date Selector -> Date/Month/Year**

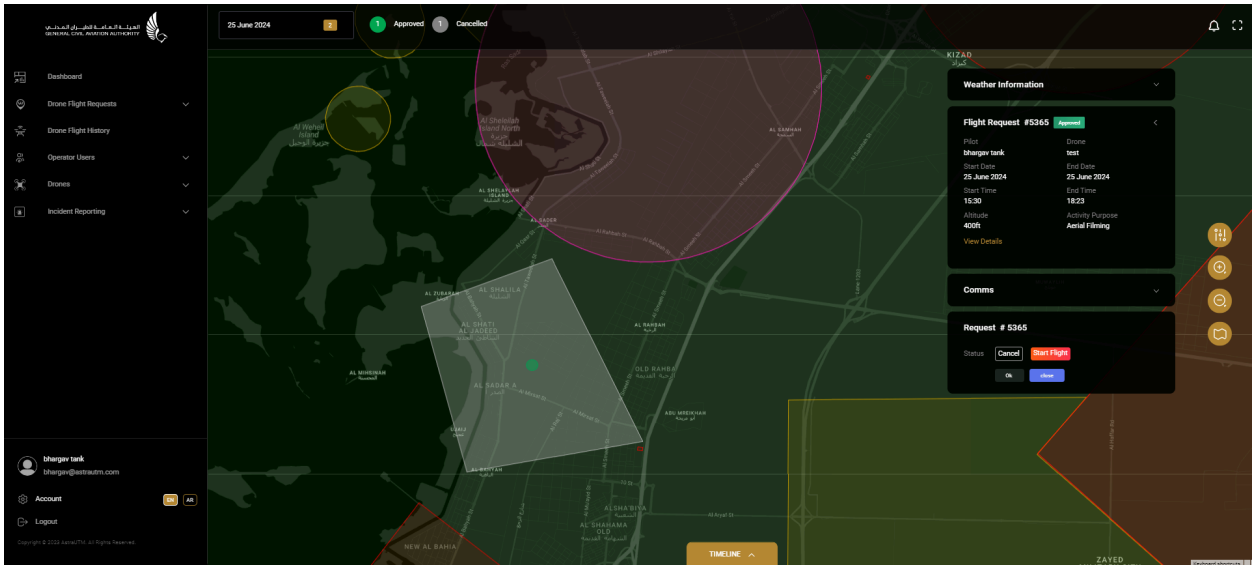


Fig 5-3(h): Flight Request Details

2. Click on a flight request status to enable/disable the visualisation of the drone flight activity for that flight request. See Fig 5-3(h) above).

3. Click on the flight request to view pop up details of that flight such as weather on the day, pilot name, drone name, type of flight, start/end time etc and the comms module.
4. Click on **View details** link for further details on that particular flight request.

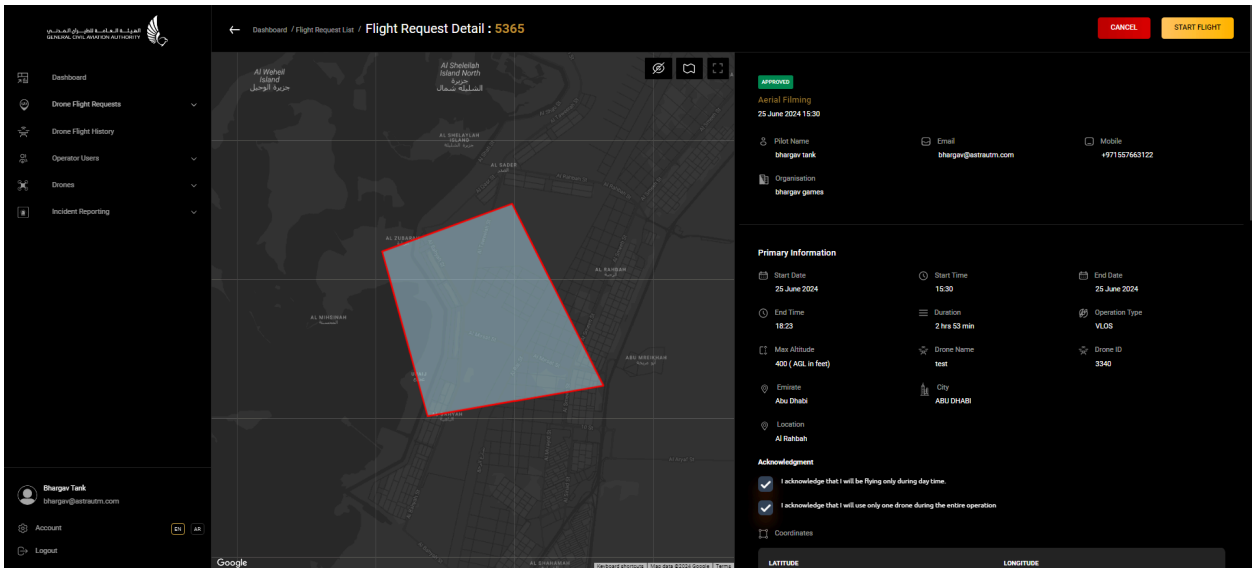


Fig 5-3(i): Flight Request Details

5. The users will also be able to see the duration of that flight, reflected in the timeline bar at the bottom of the dashboard.

5.3.4 Daily Timeline Bar & Legend

At the bottom of the dashboard is the timeline bar that displays a timeline slider allowing the user to select a particular time of day. (in Local Time Coordinated - LTC). This allows the user to view airspace activity either on the current day or historically (if selected in the past) or that which is planned for at a later date (if selected in the future).

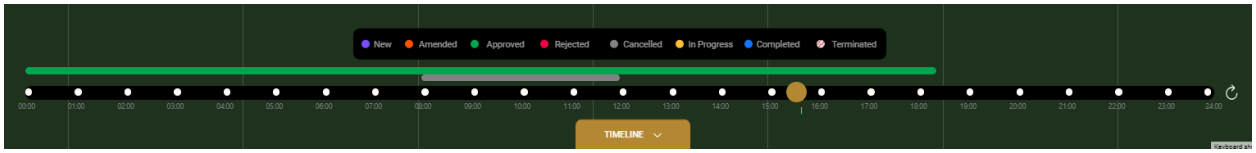


Figure 5-3(j): Timeline Bar & Legend

The **Legend** provides a quick reference to the colour codes of the various flight request Status as depicted in the Map view.

The **Timeline Button** control allows the Users to hide or show the Timeline and Legend - which can aid in freeing up more space on the Map View.

The **Reset Switch** on the right side - allows the users to quickly return to the current time on the TimelIne Bar with a single click.

5.4 Drone Flight Requests

This feature allows Organisation Managers to view and monitor drone flight requests created by pilots registered under their organisation. Organisation managers can also create flight requests for these pilots.

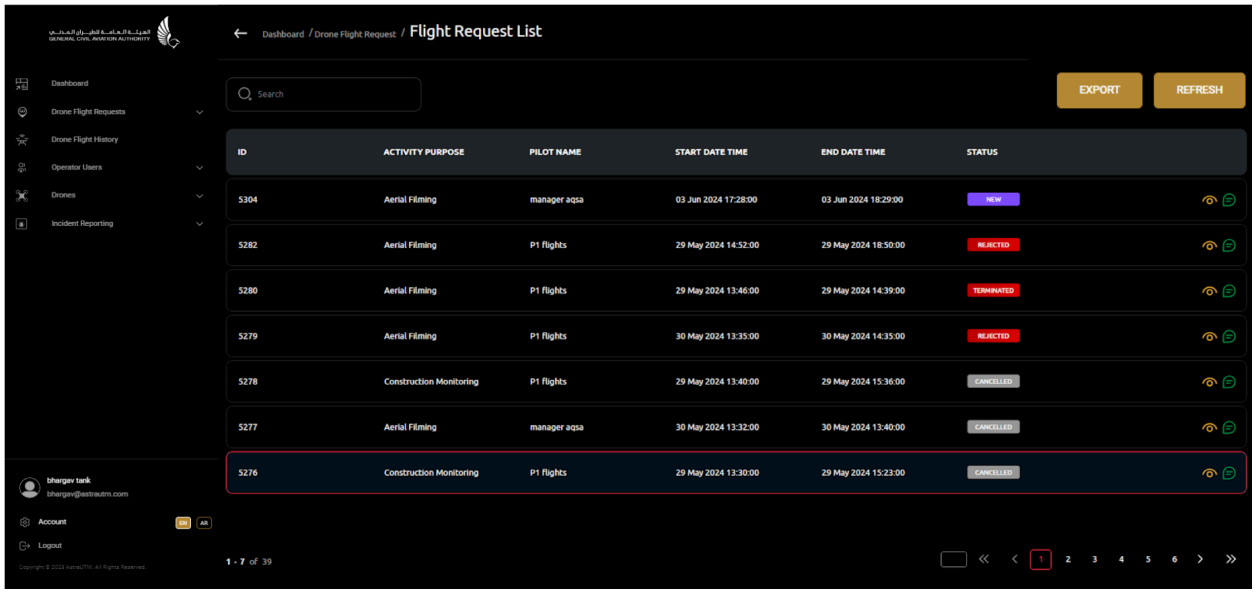


Figure 5-4(a): Drone Flight Request List

5.4.1 Viewing Flight Requests

1. Click on **Drone Flight Requests -> List All** from the menu and sub menu options to view a list of all flight requests registered within the organisation and their status, being either New, In Progress, Completed or Terminated.
2. Click the **Export** button in the top right hand corner of the page to export this Flight Request list data if required.
3. Other details of the flight request that the User is able to view are as follows
    a. Flight ID
    b. Activity Purpose
    c. Pilot Name
    d. Start/End Date Time

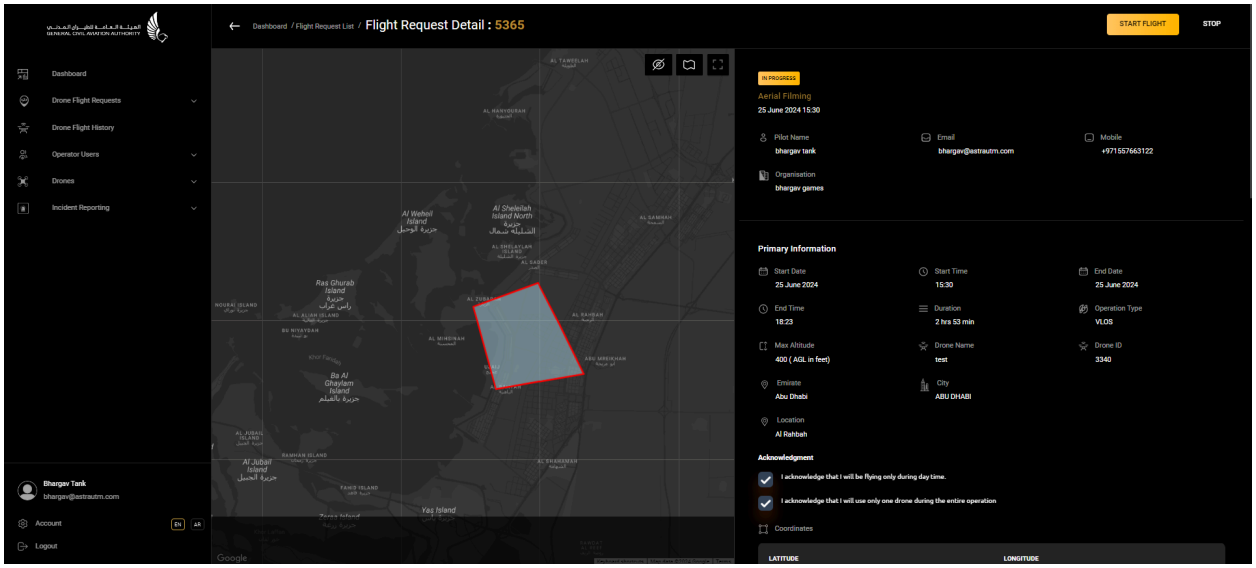


Figure 5-4(b): Drone Flight Request Details

4. Click the yellow **View** button at the end of the row to view details of a particular flight request, as seen in Fig 5-4(b).

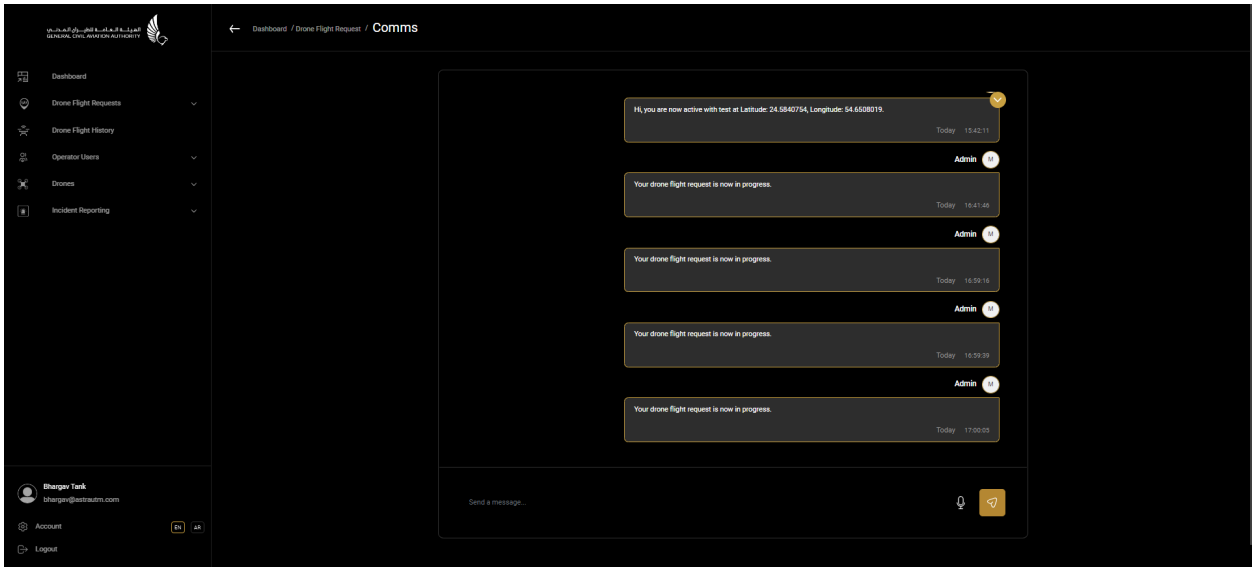


Figure 5-4(c): Drone Flight Request - Communication Module

5. Click the green **Comms button** at the end of the row in Figure 5-4(a) to view the communications log between the pilot, and organisation manager as well as any authority users (SA, Admin and Approver) for a particular flight request. This feature allows for both text and voice messages to be sent to the Pilot pre-flight and during flight.

5.4.2 Creating Flight Requests

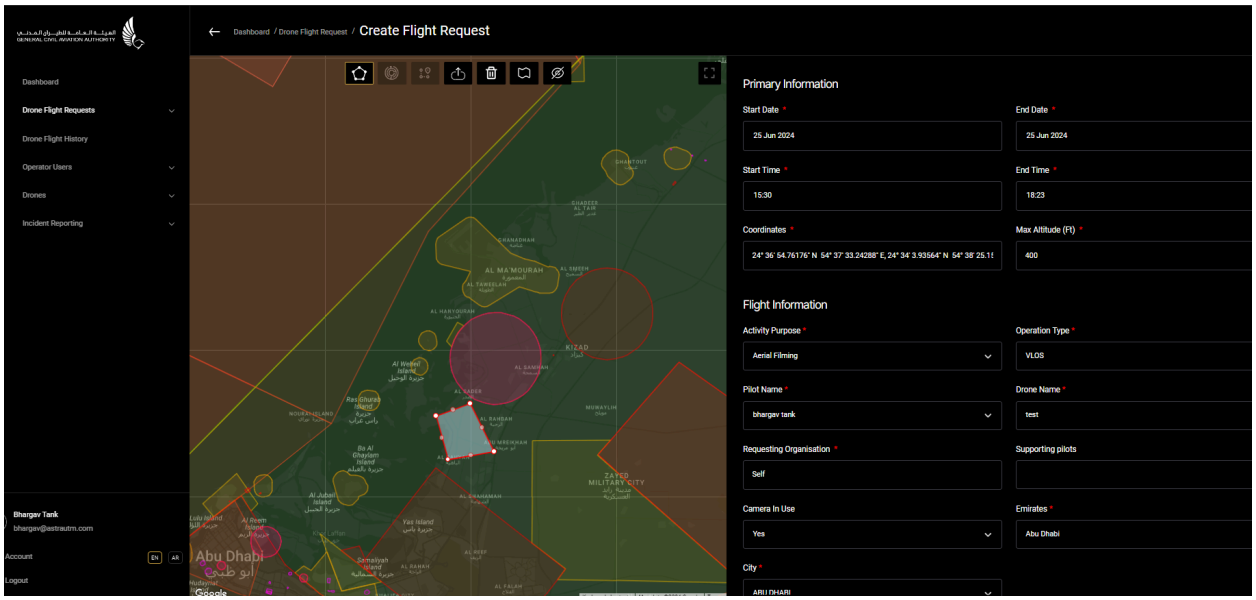


Figure 5-4(d): Drone Flight Request creation - I

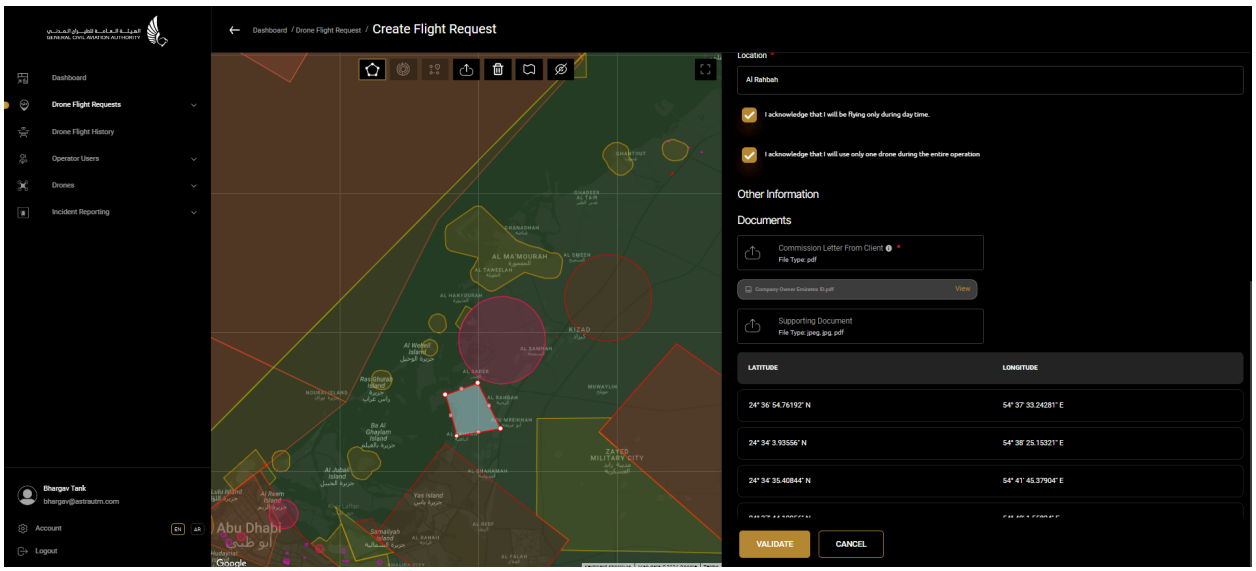


Figure 5-4(d): Drone Flight Request creation - II

1. Click **Drone Flight Requests -> Add New** from the drop down sub menu to create a new flight request in the system.
2. Create a flight plan using the circle or polygon feature on the map interface, clicking and dragging the area selected to desired location where operation is to be conducted. When defining an area of operation using a circle, recreational

pilots are limited to a maximum radius of 500m and altitude of 400 ft, and a similar corresponding area when using a polygon.

3. Complete the required information fields as mentioned below:

a. Start/End Date	g. Pilot Name
b. Start/End Time	h. Drone Name(Can select up to 5)
c. Coordinates	I. Requesting Organisation
d. Max Altitude	j. Supporting Pilots
e. Activity Purpose	k.Camera in Use
f. Operation Type	l. Emirates/City/Location

Note: Start date and End date of flight request must be the same for Recreational pilots as they are restricted to same day flights and only in the daytime.)

4. Acknowledge the statements for the operation of the drone and upload required documents: Commission Letter from Client, Risk Assessment(for commercial flight requests where drones weigh more than 25kg)and Supporting Document.
5. Click **Validate** once information fields have been completed. The system validates the information provided by the user. In case any information captured is incorrect, the system provides the users with the non-validation reason. The application will only proceed once all the captured information passes the system validation

1. Click the **Submit button** to submit the flight request for authorisation.

5.4.3 Shielded Operations - Flight Request

Shielded operations within the UTM refer to specialised drone activities conducted by government or authorised entities. These operations are exempt from routine monitoring, and only designated users can grant flight authorisations and oversee such flights.

Operators with the access to create the Shielded Operations will be allowed to create flight requests in the system for such flights.

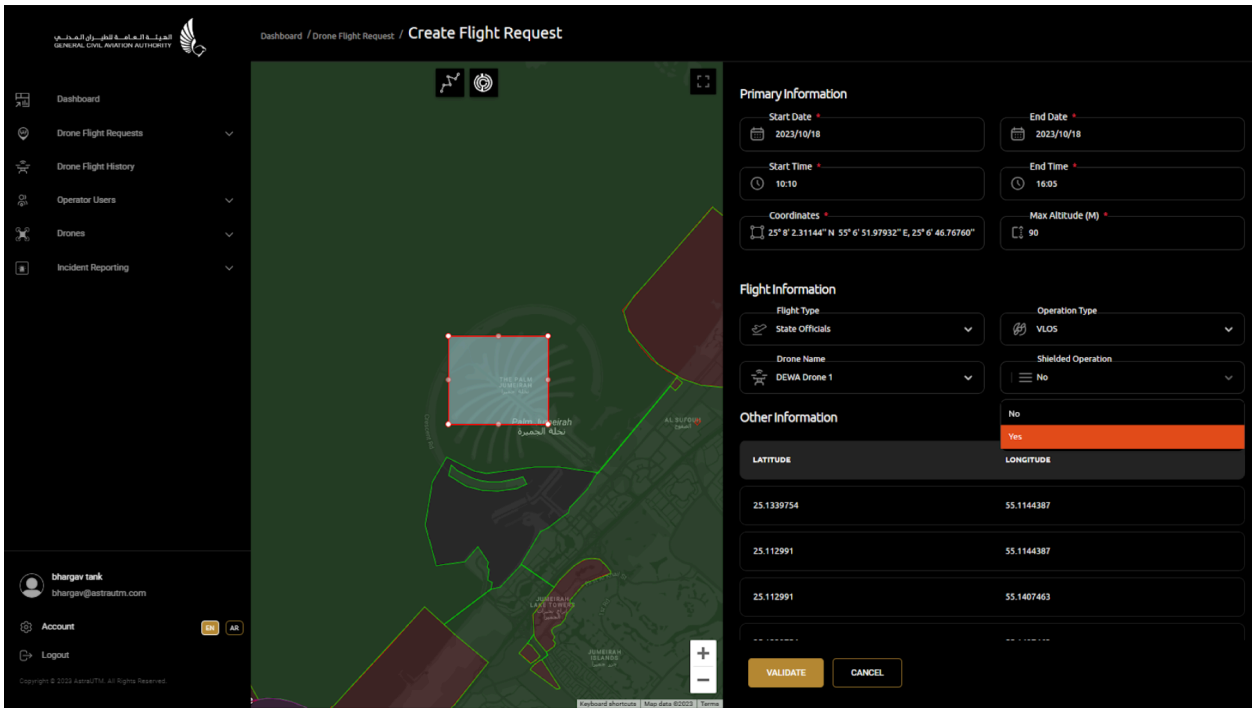


Figure 5-4(e): Drone Flight Request creation - Shielded Operation

While creating the flight requests, the users will be provided with the option to select Shielded Operations:

1. Click on **Shielded Operations -> Yes** option

This flight request will be subject to the shielded operations workflow.

5.5 Drone Flight History

Drone Flight History allows users to view details of a live flight in progress as well as details of a flight after it has been completed.

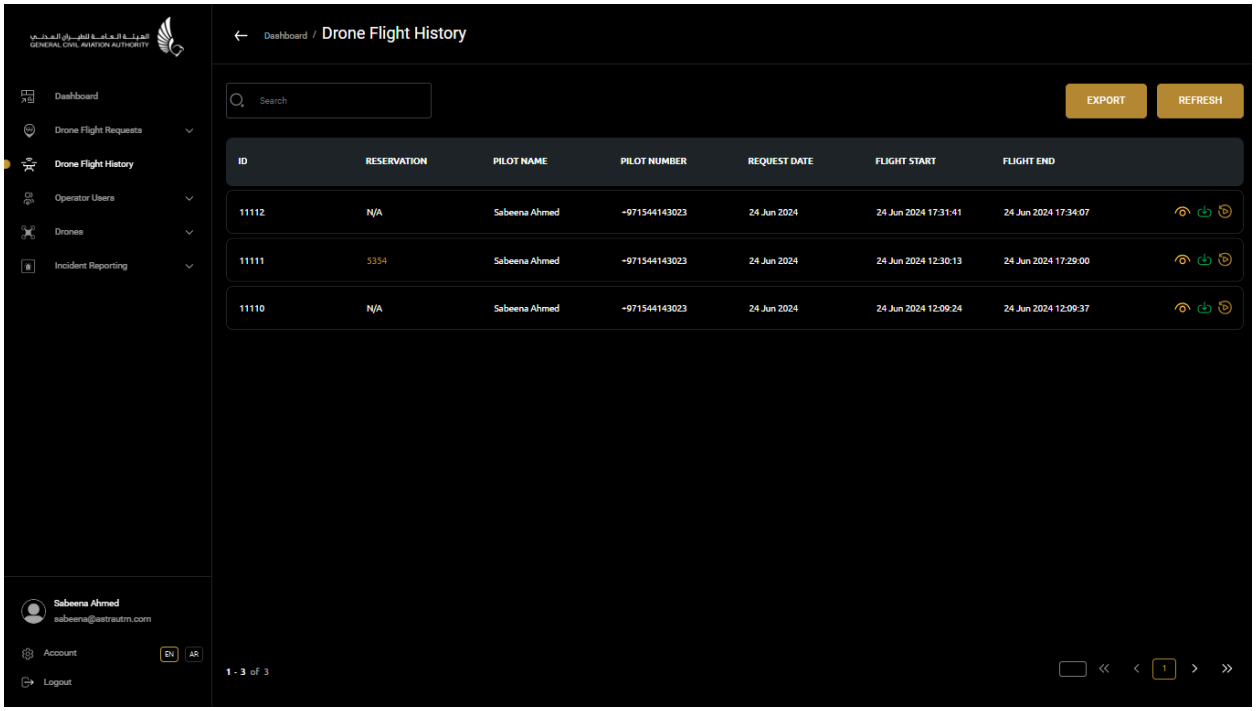


Figure 5-5(a): Drone Flight History List

1. Click on **Drone Flight History** to view the list of both live and completed flights.
2. Following details can be seen:
    a. Flight ID
    b. Reservation
    c. Pilot Name
    d. Pilot Number
    e. Request Date
    f. Flight Start/End
3. Click on a **colour coded option at the end of row** to obtain Flight History data which includes: Flight data, Post Flight Report and Flight Replay.

Flight Data:

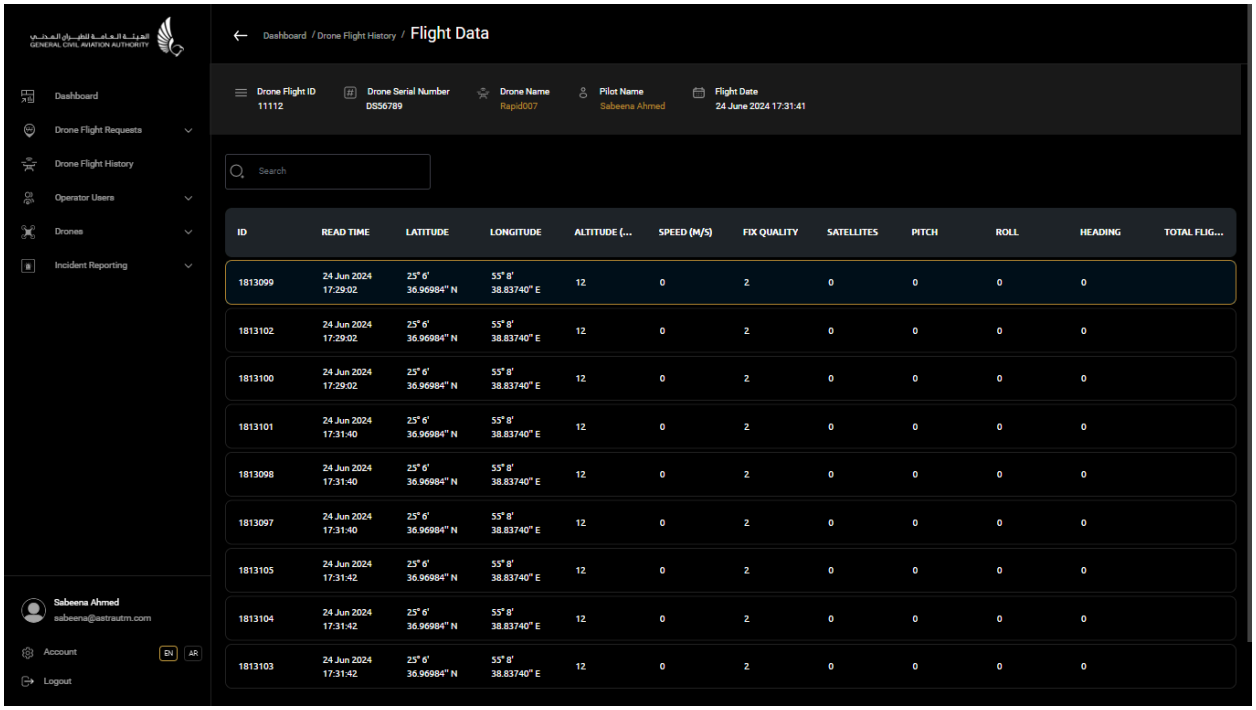


Figure 5-5(b): Drone Flight History - Flight Telemetry Data

1. Click the **Yellow View button** to view **Flight Data** as seen in Fig 5-5(a). The following flight parameters such as latitude, longitude, altitude, speed, pitch and roll etc are recorded.

Post Flight Report:

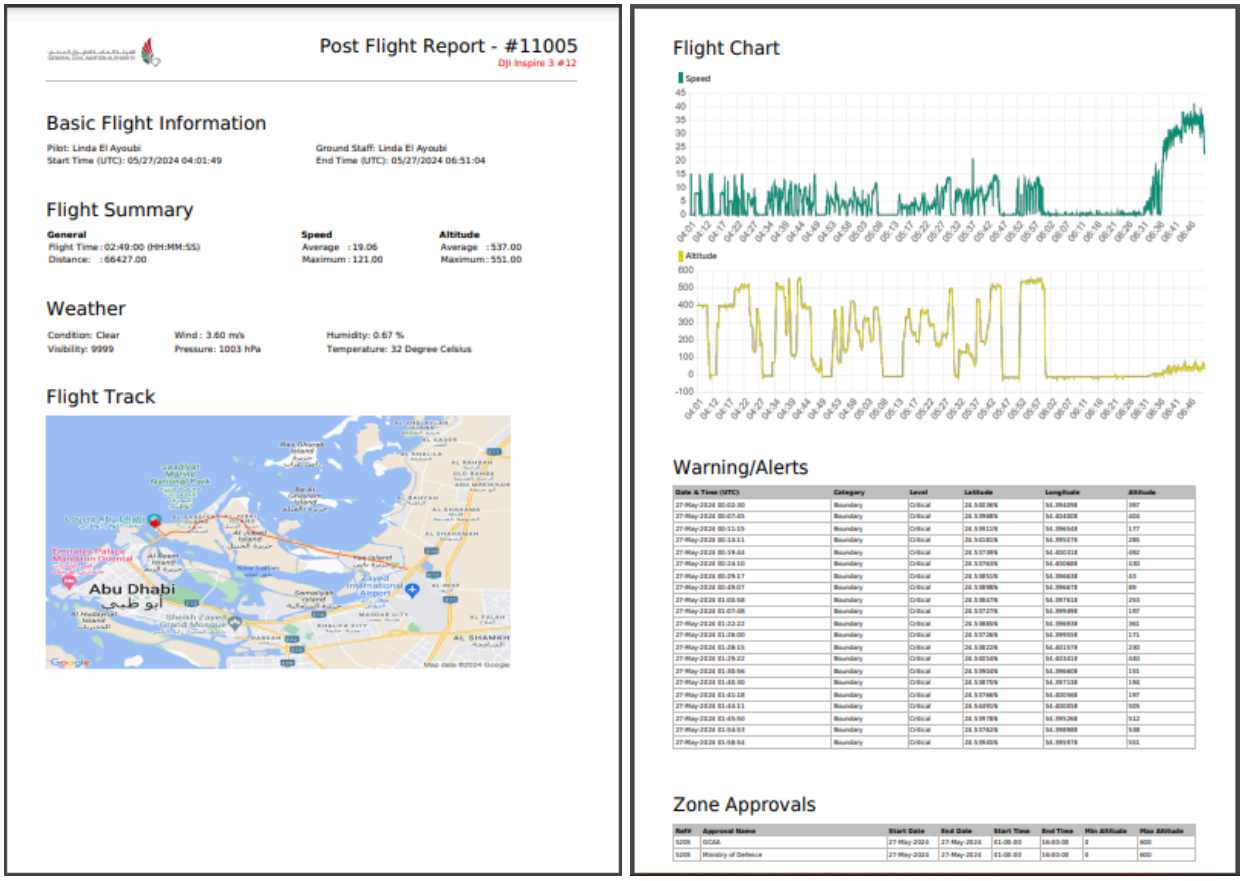


Figure 5-5(c): Drone Flight History -Post Flight Report

1. Click the **Green Download button** (see Fig 5-5(a)) to download the **Post Flight Report.**

Flight Replay:

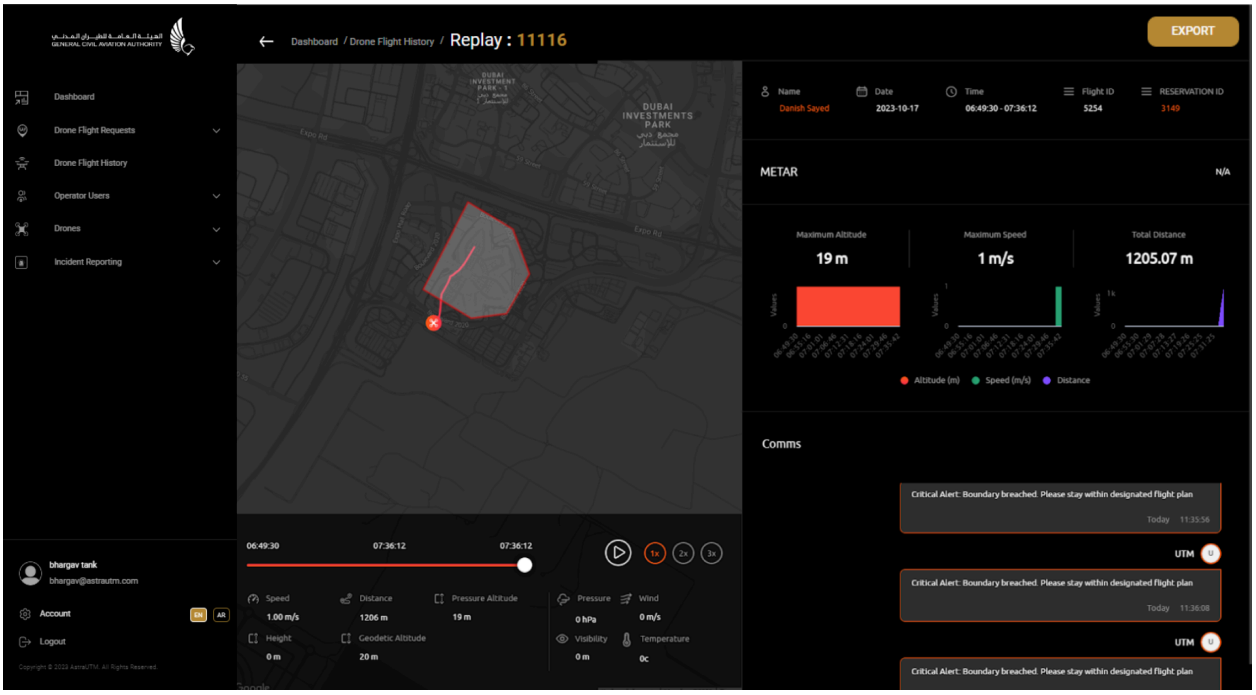


Figure 5-5(d): Drone Flight History - Flight Replay

1. Click the **Red Replay button -> Flight Replay** as seen in Fig 5-5(d).
   Flight details such as altitude, speed and distance of the drone flight can be viewed as a graphical representation on the right along with the METAR weather data and any communication that took place between the Administrator and Pilot at the time of the flight.
2. Users have the option to zoom in and out of the map as well.
3. Click the **Play button -> Flight Replay** to replay flight at different playback speeds (1x, 2x, 4x).

Note: The Shielded drone operations will be visible in the similar manner but only to the authorised users with the access privilege.

5.6 Operator Users

This feature allows Organisation Managers users to view and manage the Operator users (Organisation Managers & Pilots) registered within the organisation, and to also create/register a new Operator User when required.

Note: The Organisation Manager will only be able to view operators registered under its Organisation and the Pilot will be restricted to viewing only their own user profile.

To View Operator User List :

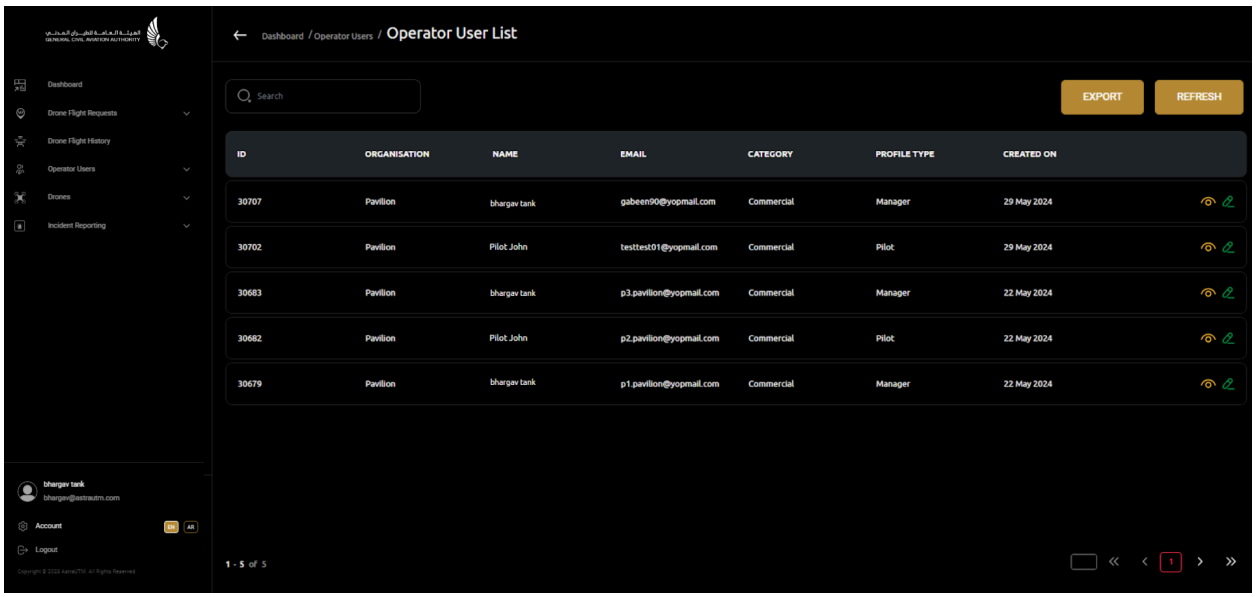


Figure 5-6(a): Operator User List

1. Click **Operator Users -> List All** from the menu and sub menu options to view all the Operator Users registered in the system.
2. The information displayed is as below:
    a. Operator ID
    b. Organisation
    c. Name
    d. Email
    e. Category
    f. Profile Type
    g. Created On
3. Click the **Export** button in the top right hand corner of the page to export Operator User data if required.

To View Details of Operator User :

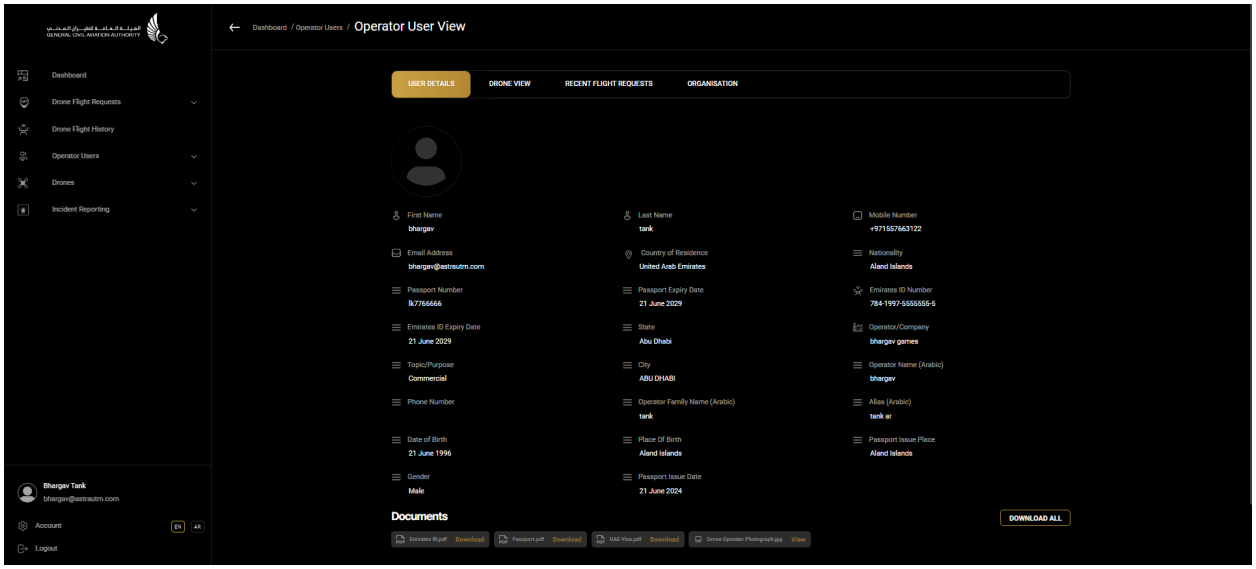
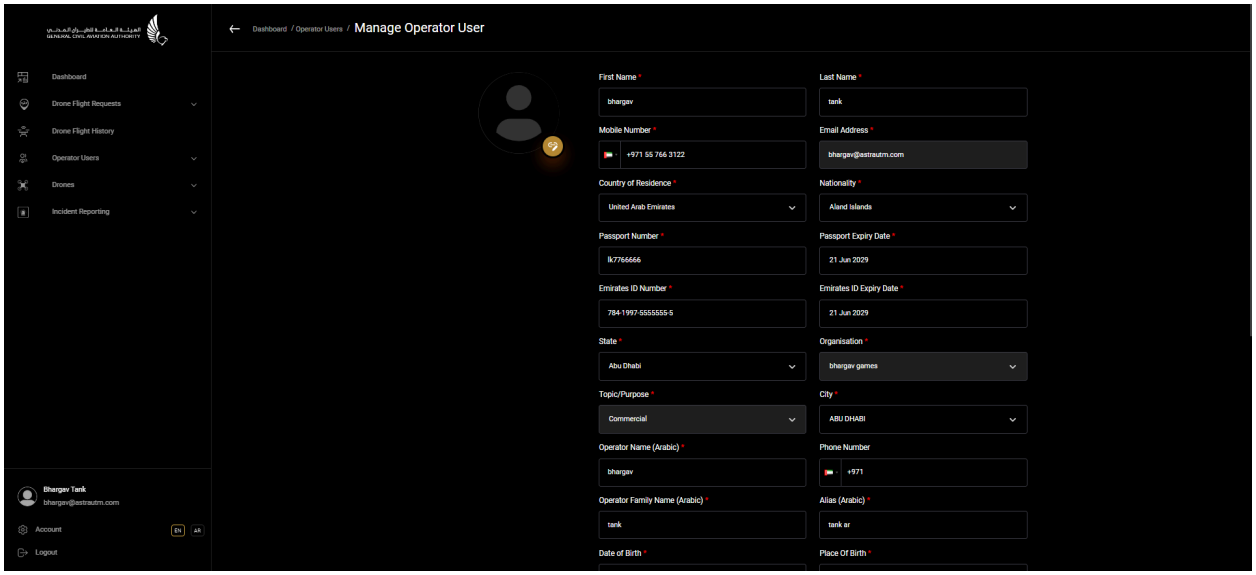


Figure 5-6(b): Operator User (View)

1. Click the yellow **View** button at the end of the row to view details of the following:
    a. User Details
    b. Drones listed under Operator
    c. Recent Flight Requests
    d. Organisation

To Edit Operator User Details :



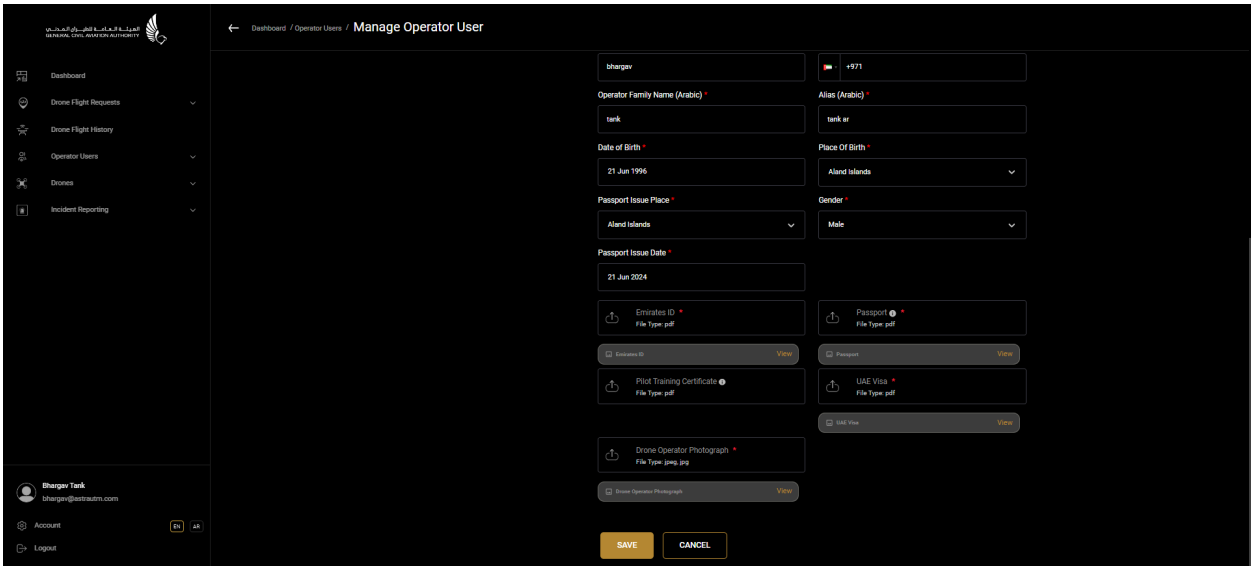


Figure 5-6(c): Operator User (Edit)

1. Click the green **Edit** button at the end of the row to edit details of the Operator User such as name, mobile number, nationality and passport number. *(Note: Email, Profile Selector and Organisation cannot be edited and stays permanently in the system. The only way to change this information is to create a new profile and organisation and assign users again.)*
2. Click **Save** when changes are complete.

To Add Operator User :

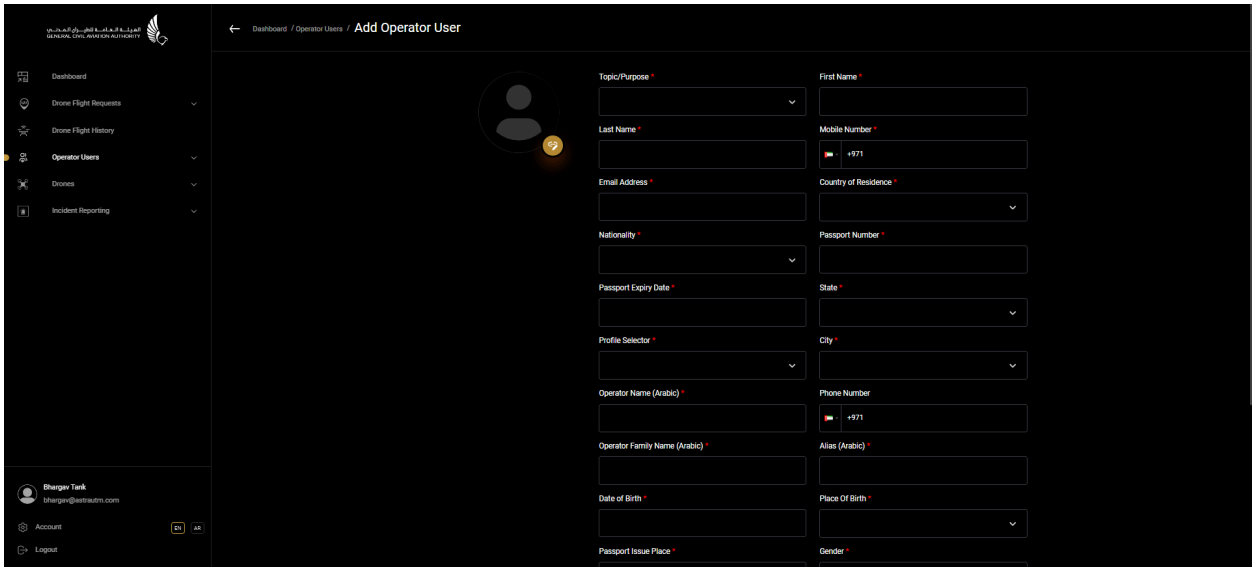


Figure 5-6(d): Operator User - Creation

1. Click **Operator Users -> Add New** from the menu and sub menu options to create a new Operator user in the system.
2. Complete the required information fields and upload required documents as and click **Save.**
3. An email notifying the pilot of successful account creation will be automatically generated prompting the pilot to link the account with their UAE Pass as seen below in Fig 5-6(e). (see Section 5.1.2 for linking account to UAE PASS)

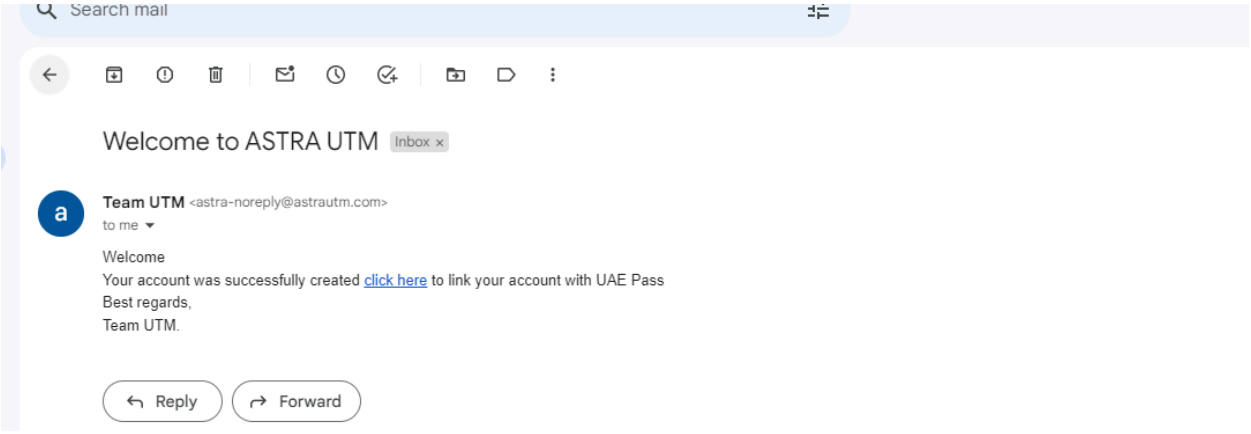


Figure 5-6(e): Successful Account Creation email - Commercial Pilot

5.7 Drones

This feature allows Pilots (recreational and commercial) and Organisation Managers to view all the Drones registered under their profile or within the organisation respectively. Users are also able to register a new drone and/or a fleet of drones.

To View Registered Drone List :

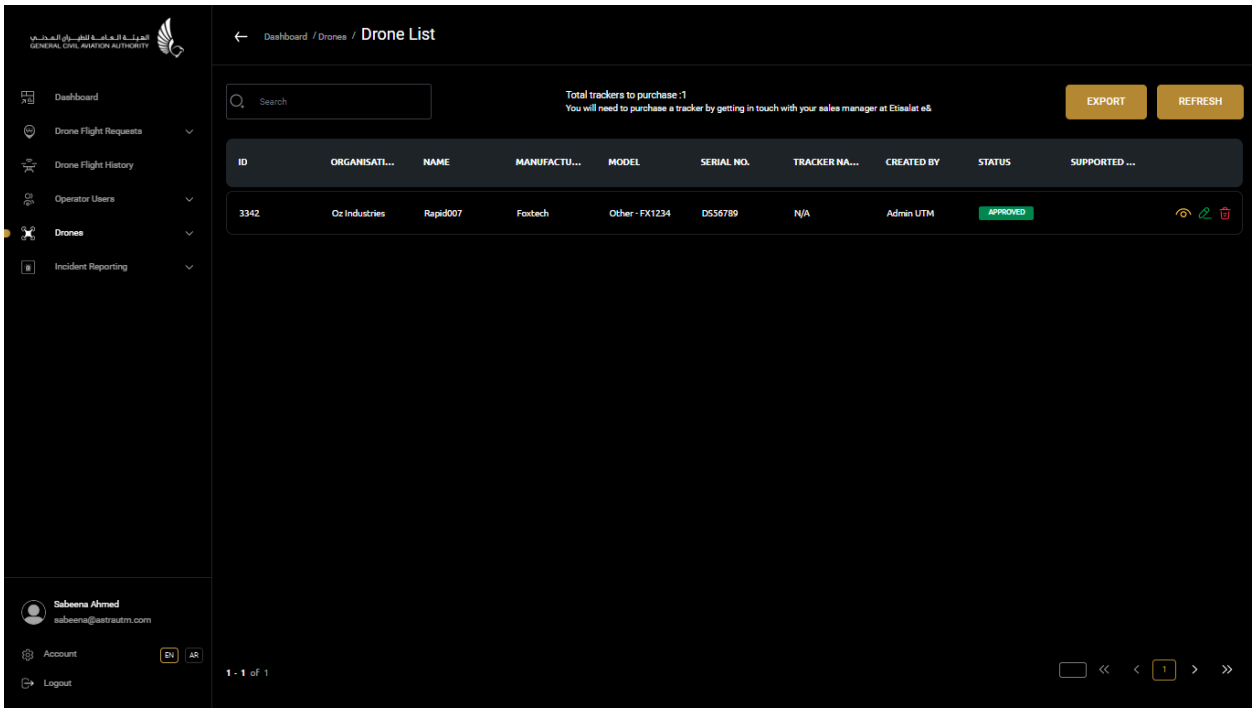


Figure 5-7(a): Drone List

1. Click on **Drones -> List All** from the drop down sub menu bar to view all the drones registered within the organisation. The following information is displayed:

   a. ID
   b. Organisation
   c. Name of Drone
   d.Manufacturer
   e.Model
   f. Serial No.
   g. Tracker name
   h. Created By
   i.Status

2. Click Export located in the top right corner to export Drone List information when required.

To View Details of Drone:

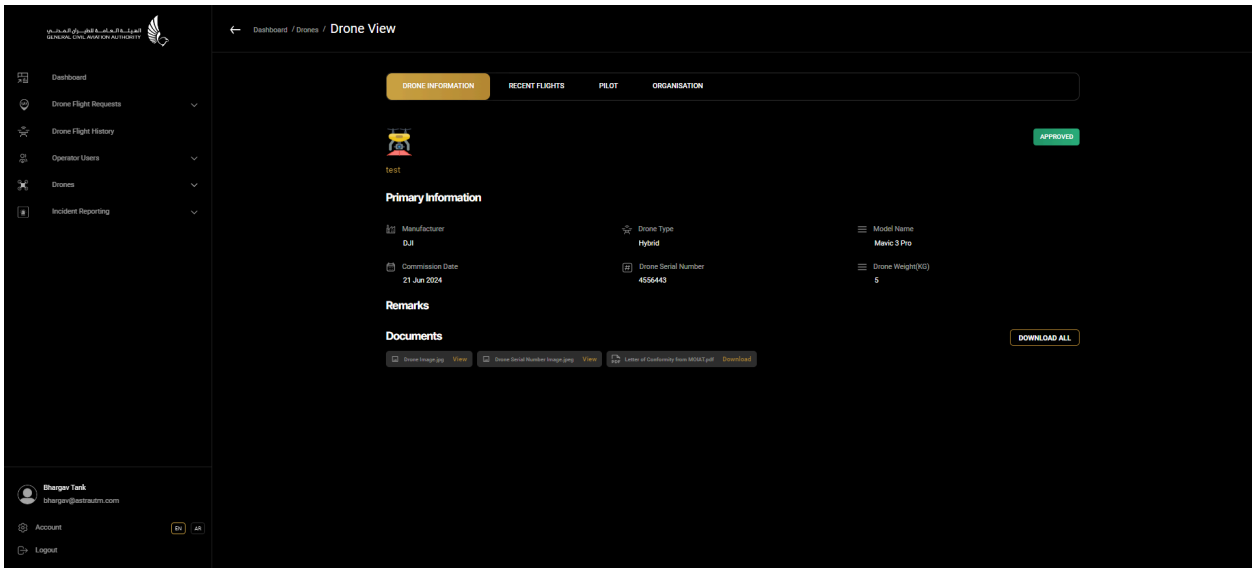


Figure 5-7(b): Drone Details

1. Click on the action buttons at the end of each row on the List All page (Figure 5-7 (a)) to View and Edit Drone Details.
2. Click the **Yellow View button** to view details of the registered drone , recent flights conducted by the drone, pilot and organisation details.

To Edit Drone Registration Details :

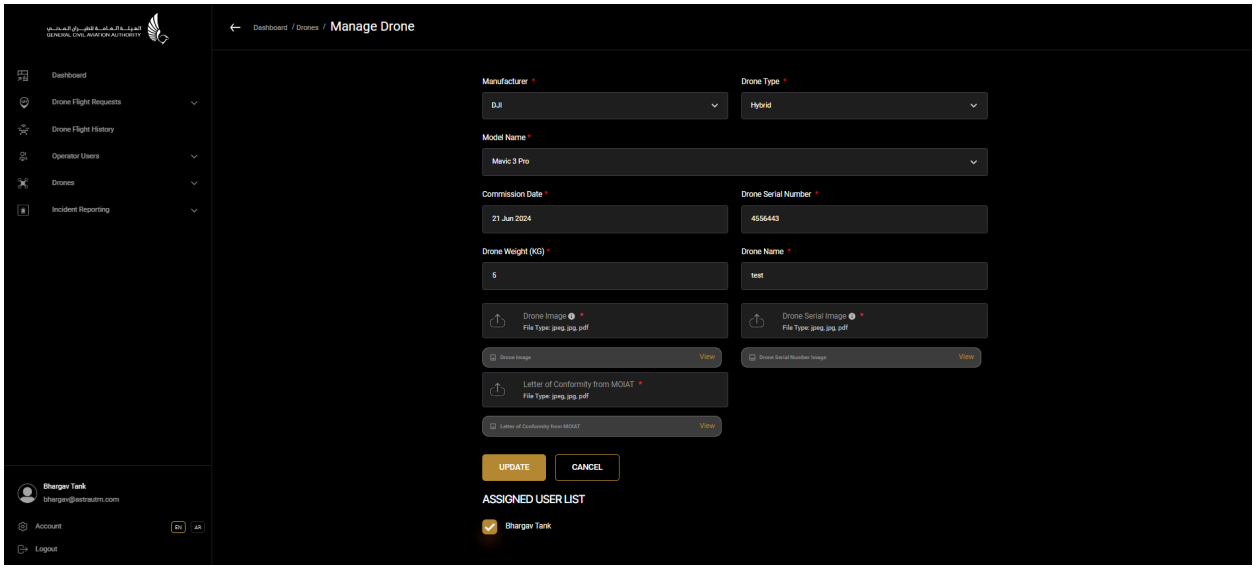


Figure 5-7(c): Edit Drone Registration Details

1. Click the **Green Edit button -> Drone Registration.** Edit details, and click Update**.**

To Add New Drone :

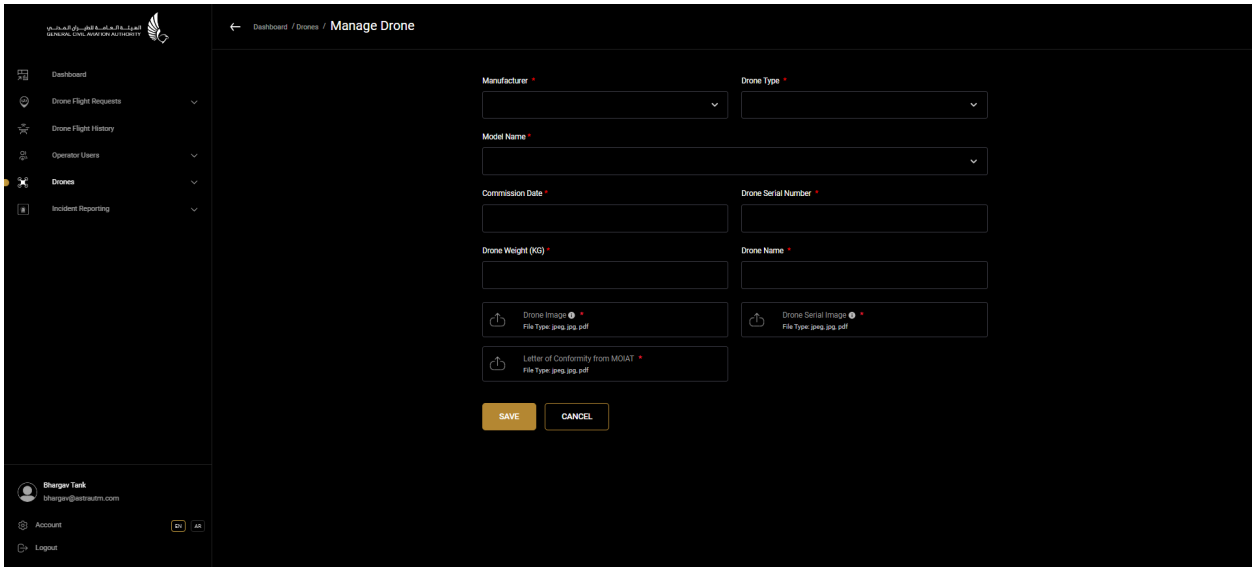


Figure 5-7(d): Create Drone

1. Click **Drones -> Add New** to register a new drone in the system.

2. Complete the required information fields on the **Drone Registration** page as listed below, along with uploading requ documents, and click **Save**.
    a. Manufacturer
    b. Drone Type
    c. Model Name
    d. Commission Date
    e. Drone Serial Number
    f. Drone Name
    g. Drone Weight*
    h. Upload documents**

(*The maximum weight allowed when registering a drone for recreational operations is 5kg. Drone weight for commercial operations is unlimited, however, a Risk Assessment must be uploaded when registering a drone that weighs more than 25kg). **Documents include - Drone Image, Drone Serial No. Letter of Conformity from MOIAT, Risk Assessment for drones weighing more than 25kg - this is for commercial operations only).

Note: Drones registered by the Organisation Manager are assigned to all pilots within their organisation. Drones registered by individual pilots are exclusively assigned to the respective registering pilots.

To View Drone Groups:

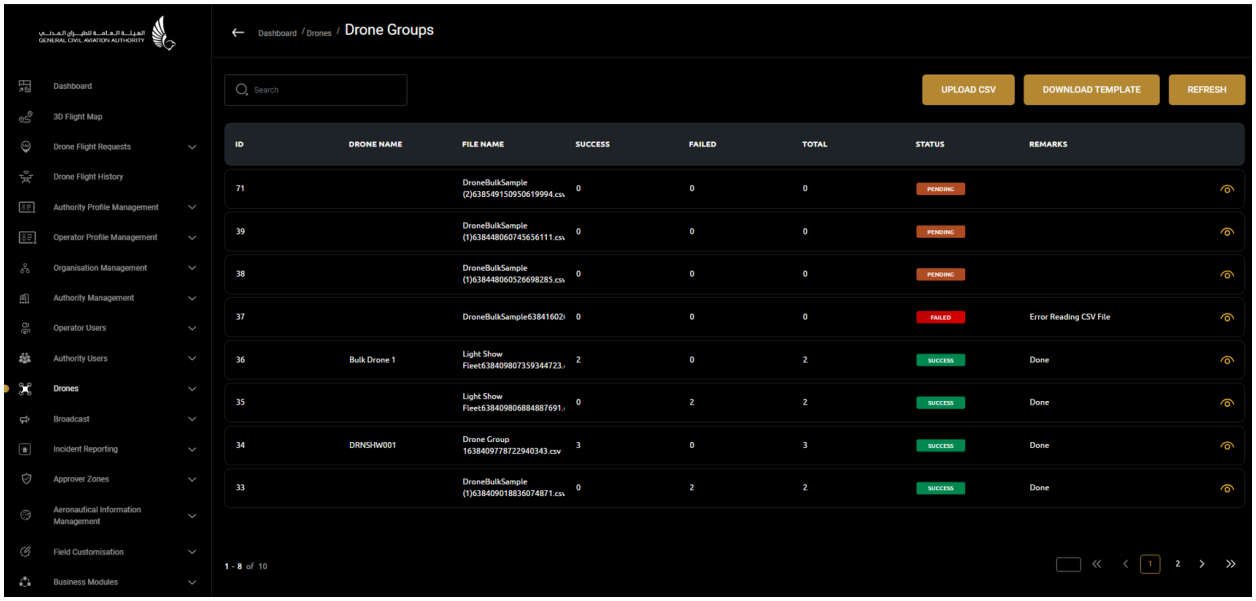


Figure 5-7(e): Drone Groups/Fleets

1. To view drones that are part of a fleet of drones, select **Drone Groups** from the sub menu options and navigate to the drone group in question and click the yellow **View** button to view drones in that group.
2. The Organisation Manager can add a fleet of drones by downloading template and entering required drone information. This is then uploaded as a CSV file.

5.8 Incident Reporting

This feature allows the user to view details of Incident Reports submitted by pilots during an event.

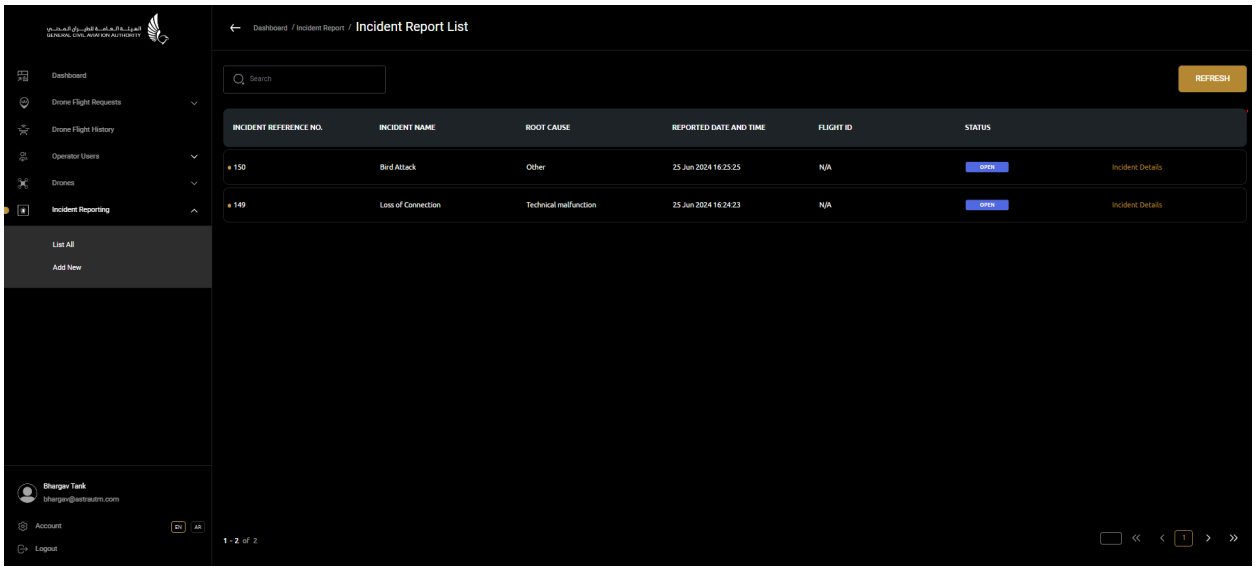


Figure 5-8(a): Incident Report List

1. Click on **Incident Report** from the menu to view a list of all Incident Reports and their status, being either Open, Under Review or closed.
2. Other details of the Incident Report that the User is able to view are as follows:
    a. Incident Reference no.
    b. Incident Name
    c. Root Cause
    d. Reported Date and Time
    e. Flight ID
    f. Status

3. Click on the **Incident Details** button at the end of the row to view details of a particular incident report. See Fig 5-8(b) below.

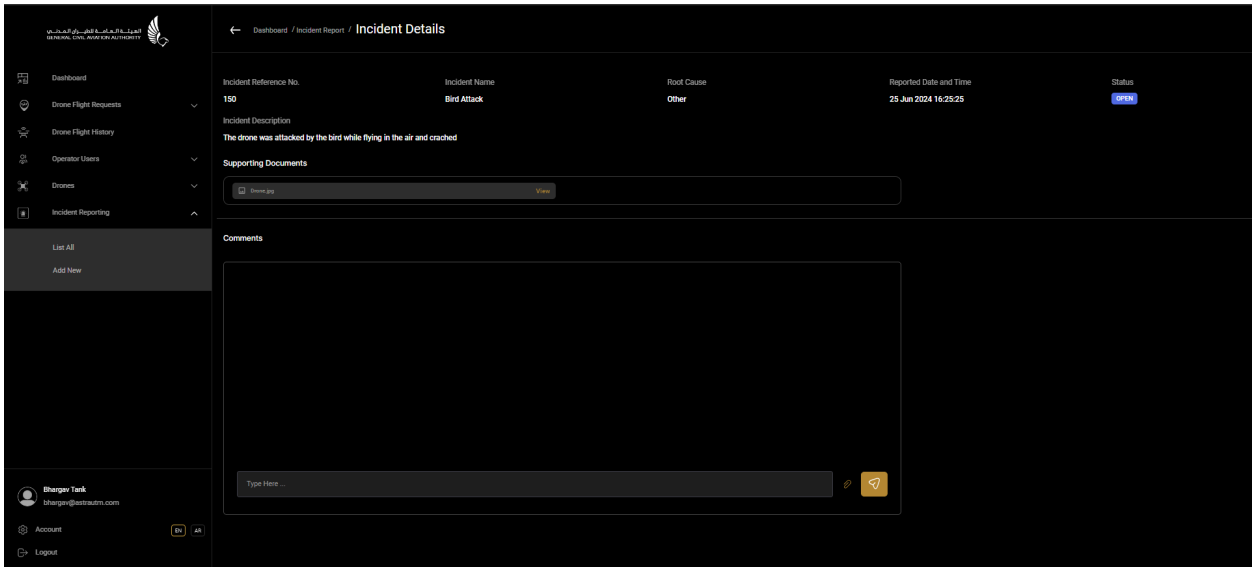


Figure 5-8(b): Incident Details

4. Organisation Managers can review the details of the incident as well as any reports/documents/comments submitted by the reviewing authorities.
5. The option for the Organisation Manager to provide further comments and documents is provided towards the bottom of the screen.

Reporting an Incident:

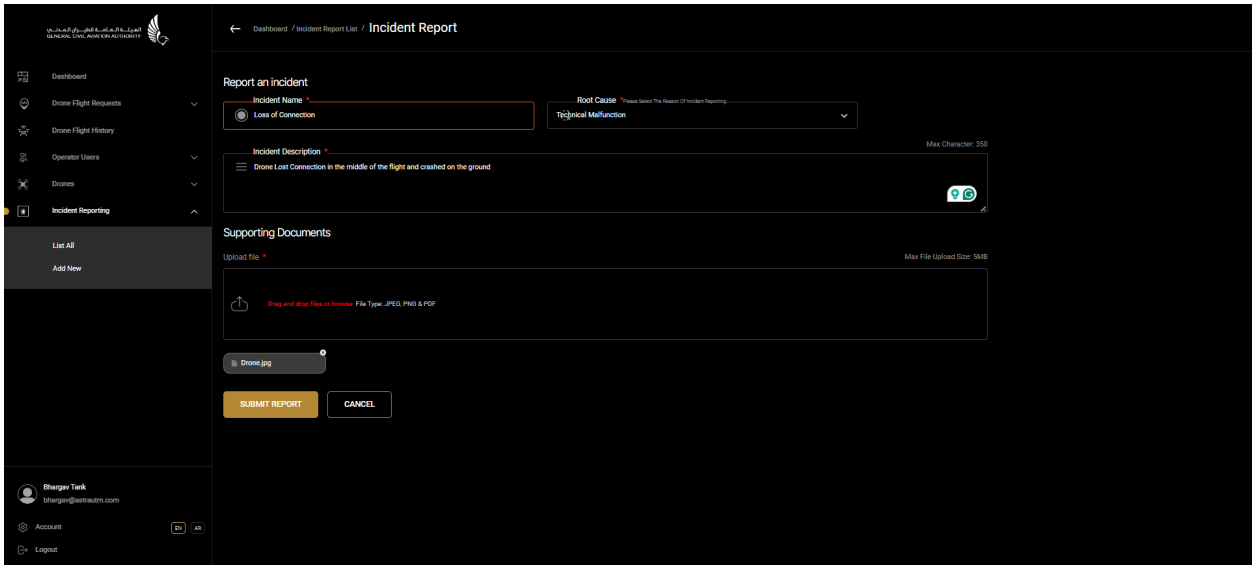


Figure 5-8(c): Reporting an Incident

1. Click **Add New** to report an Incident.
2. Create a Name for the Incident and provide the root cause and a description of the Incident along with uploading any supporting documents.
3. Click **Submit Report** when done.

5.9 Account

This feature allows the Organisation Manager to view, edit and update details of the following:

a. User Profile
b. Drones registered under the organisation
c. Recent Flight Requests and
d. Organisation

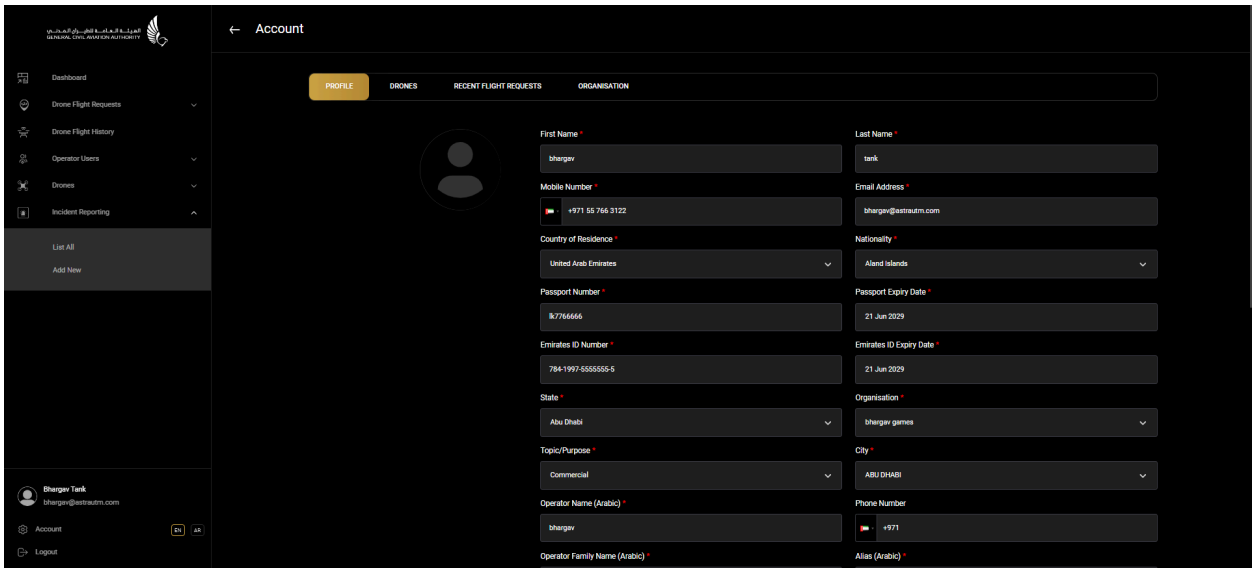
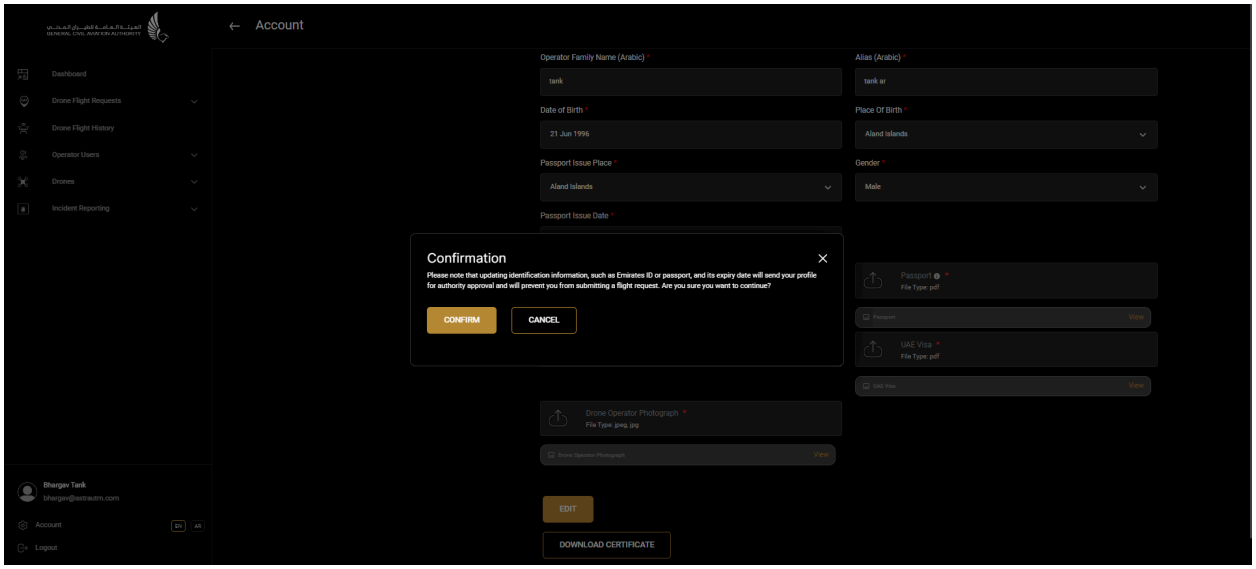


Figure 5-9(a): Account Details Page

1. Click on **Account** located towards the bottom of the menu options on the left side of screen.
2. Click the desired tab to **View/Edit** details of account's profile, drones, organisation, and to view recent flight requests or to reset password.
   (See Figure 5-9 b,c,d,e, f, below).
   Note: For Profile: Email and user name field are non editable.
3. Click **Save** to update changes.

Profile:



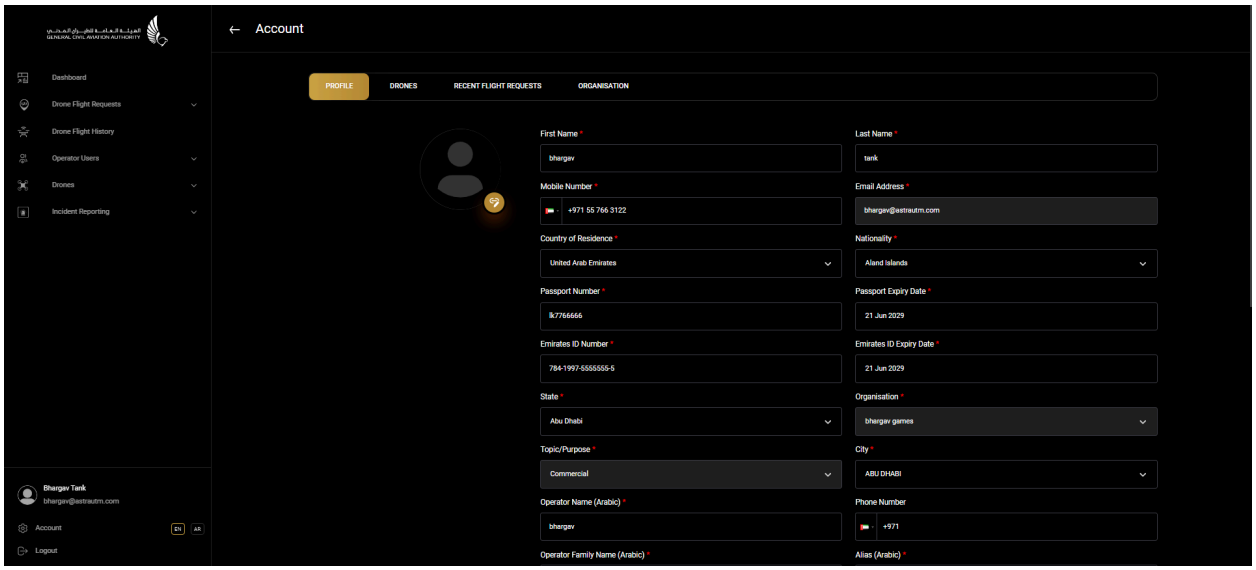


Figure 5-9(b): Account Details Page - Profile Edit

Note: Any changes made to details such as the user's Emirates ID, Passport and its expiry date will send the user's profile back for Authority approval preventing the user from submitting flight requests until their profile has been approved.

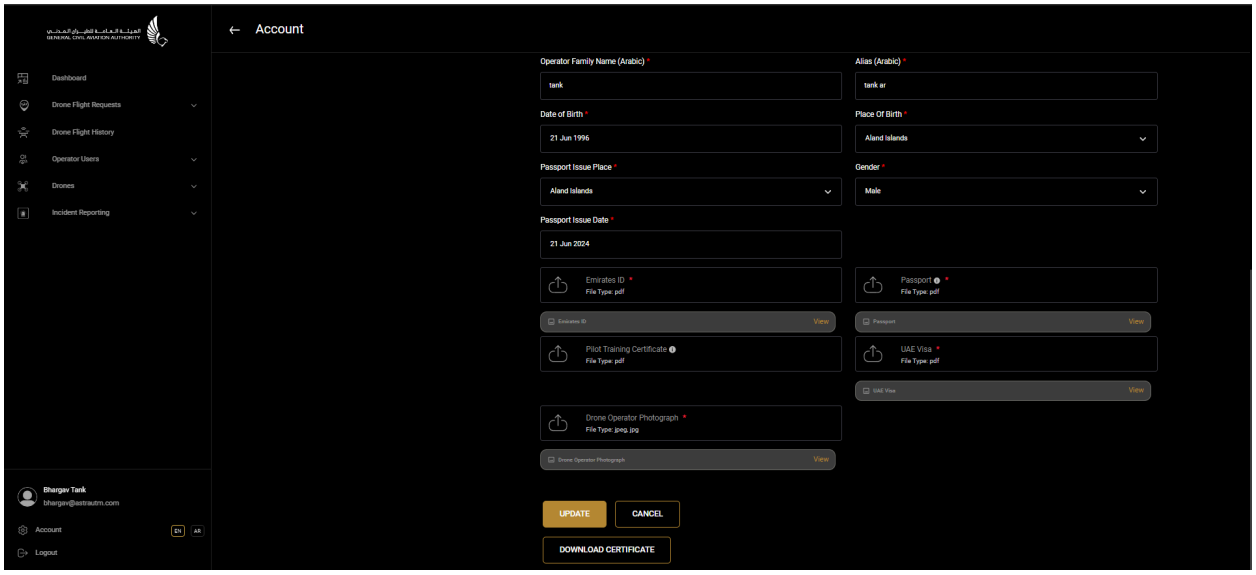


Figure 5-9(c): Account Details Page - Profile Edit

Drones:

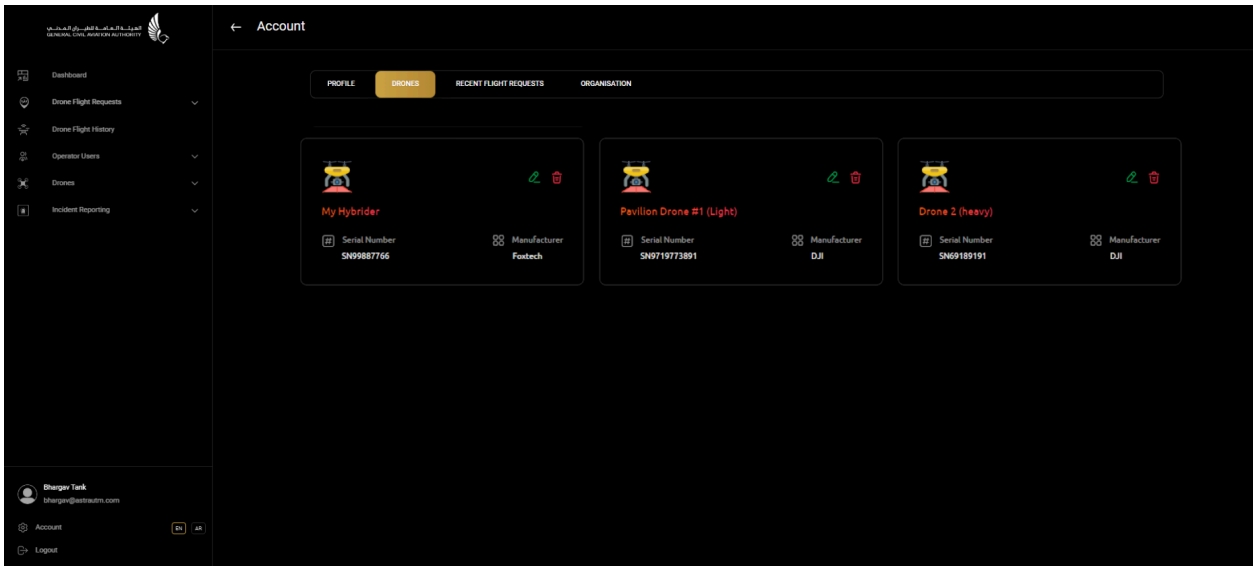


Figure 5-9(d): Account Details Page - Drones

Drone Flight Requests:

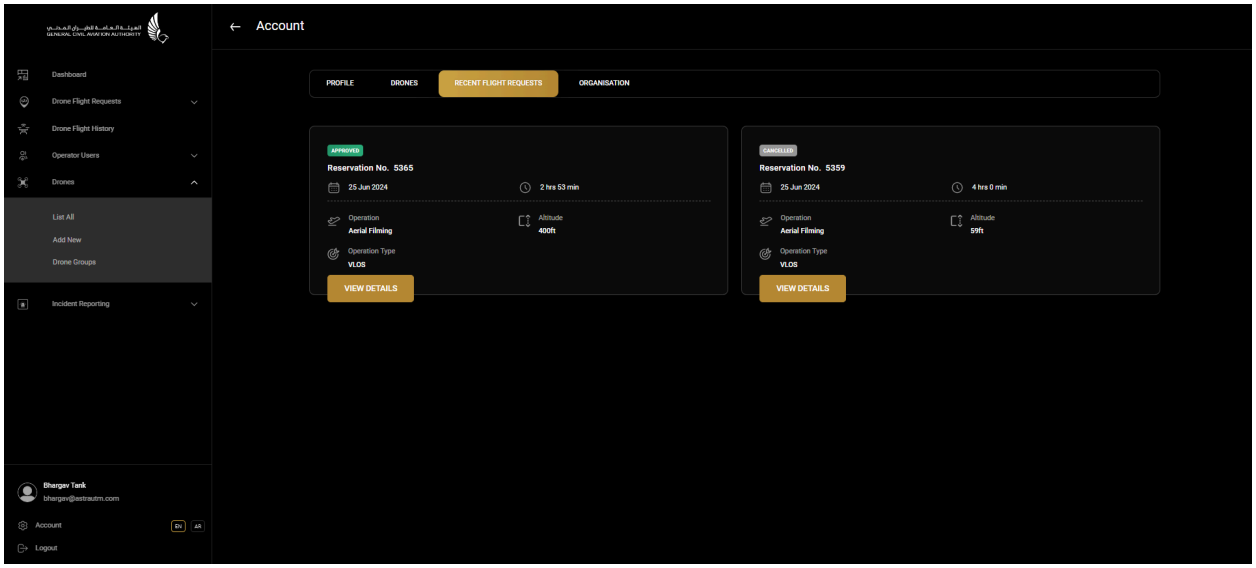


Figure 5-9(e): Account Details Page - Flight Requests

Organisation:

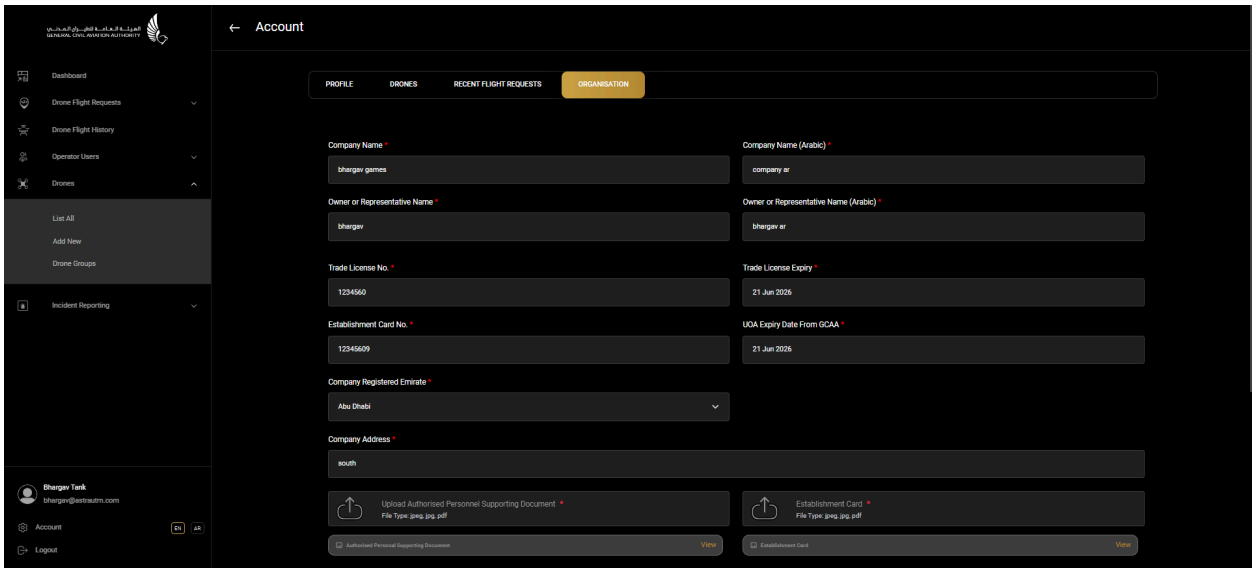


Figure 5-9(f): Account Details Page - Organisation

5.10 Language

This feature provides multilingual support allowing the **Organisation Manager and Pilots** to change the language on the user interface.

1. Users can switch between the primary and secondary languages set by the Administrator in the customization panel. The language switch buttons are located on all the screens at the bottom of the left panel.
2. Click on **EN button** for the **English language** or the **AR button (Secondary)** for the **Arabic language** to switch between languages.

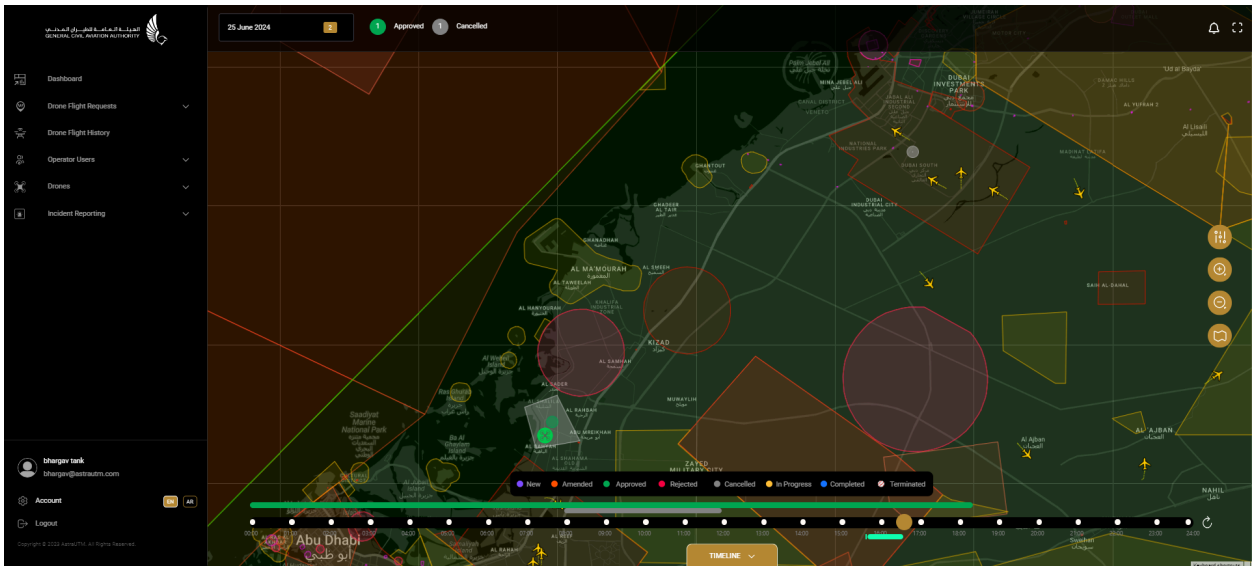


Figure 5-10(a): Account Details page in Primary Language - English

Figure 5-10(b): Account Details page in Secondary Language - Arabic

5.11 Account Log Out

This feature provides a secure way for all users to end their current session within the application. Clicking **Logout** from menu options on the left of the dashboard logs user securely out of UTM. To access the system again, the user can login with UAE PASS from the Welcome screen.

Figure 5-11: Account Logout

6.0 Feature Access

6.1 User Profile Access*

#	Features	OM	OM - Govt	Pilot
1	**Dashboard**	☑	☑	☑
2	**Drone Flight Request**	☑	☑	☑
3	**Drone Flight History**	☑	☑	☑
4	**Operator User**	☑	☑	☐
5	**Drones**	☑	☑	☑
6	**Incident Reporting**	☑	☑	☑
7	**Account**	☑	☑	☑
8	**Language**	☑	☑	☑
9	**Shielded Operations****	☐	☑	☑

***Note**: Access to system features and the privilege to add, edit, and view the data is determined by the user's assigned profile.
****This feature** is accessible to the Government Organisation Managers and Pilots with the access to the Shielded Operations.

7.0 Knowledge Base

7.1 FAQs

1. **How can I install the UTM application?**

   Go to the App Store or Play Store depending upon the device that you use and search for UAE Drones and install the application**.**

2. **How can I change my profile picture or edit my profile?**

   Open the UTM Mobile application and go to the Profile section. Click on **EDIT** to edit your profile or update your profile picture by clicking on the edit button next to the default image. Select and upload your desired picture.

3. **How can I check the situational awareness of airspace before conducting my flight?**

   Open the application and click **Create Flight Request** and then tap on the desired location on the map and then click on the arrow button on the Situational Awareness section.

4. **How can I change the preferred language?**

   Open the application and click on the hamburger button and then go to Settings and select the desired language.

7.2 Troubleshooting

1. **What should I do if I'm not able to see the weather details?**
   Check if all the permissions are allowed for UTM application, if not then allow the location access for UTM application.

2. **What should I do if I'm unable to edit my drone manufacturer or drone type?**
   While editing the drone details, the fields for manufacturer and drone type cannot be modified, therefore you will need to delete the existing drone and create a new drone in the UTM application.

8.0 Contact Information

Should further information or clarification be necessary, please do not hesitate to reach out to the following members of team:

#	Name	Designation	Email Address
1	Naveed Ahmed	Project Manager	naveed@astrautm.com
2	Muhammad Jamaal	Training Manager	jamaal@astrautm.com