THERMADRONE

USER'S MANUAL [V1]

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1. APK INSTALLATION

- Download the file thermadrone.apk on your Android device (Kitkat version or later).
- Double click on the file and continue with the installation process.
- Wait until the process is completed.
- You will see a new application icon on your Android screen called "ThermaDrone" (Figure 1).
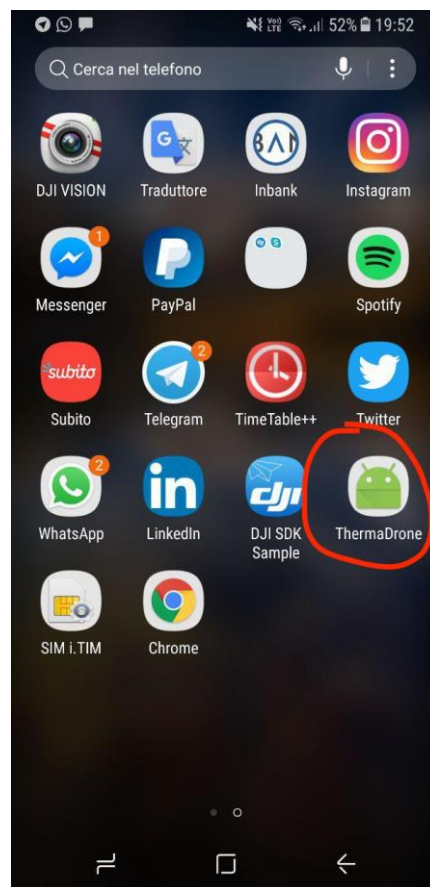- If you see this screen the installation process has been successful.

Figure 1

2. HARDWARE SETUP

The following set of pictures illustrate what is required to before setting up the hardware on the Phantom Drone:
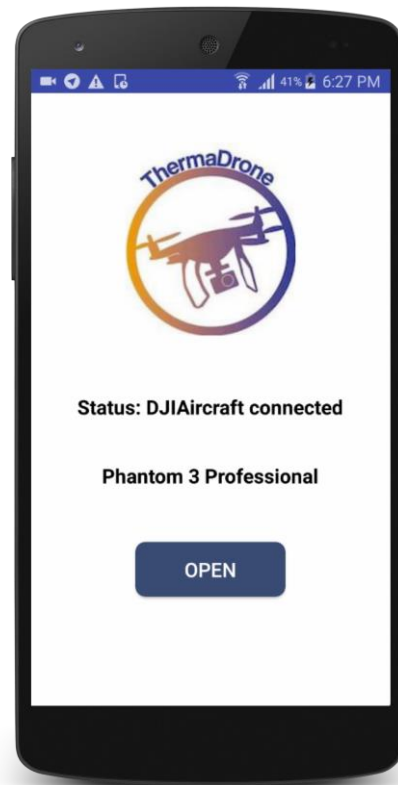
- Phantom 3 with propellers and ThermaDrone Kit installed on it

- Remote controller and USB cable for Android terminal

- Android terminal (Kitkat version or later) with ThermaDrone application installed

Please be aware that the elements described above are required to proceed further with ThermaDrone application use.

a) **Attach the propellers**
- Attach the black propeller nuts onto the motors with black dots and spin them counter-clockwise to secure.
- Attach the silver propeller nuts onto the motors without black dots and spin them clockwise to secure.

b) **Battery Installation**
- Slide the battery into the battery compartment according to the arrow's direction. Make sure that you hear a click sound indicating the battery is firmly installed. Failure to do so may affect the flight safety of your aircraft.

c) **Power on the Drone and the controller**
- On the back of the battery it is possible to find a button; press it and release it, then press and hold until the Drone emits a sound. Green lights blinking on the battery will indicate the Drone has been powered up properly.

d) Power on the controller

On the remote controller, press on the power on button and release, then press and hold until a sound is emitted by the remote controller.

e) Power on the ThermaDrone Kit

On the Drone it is possible to see that the power bank battery cable is not plugged into the Raspberry.
Connect the Micro-USB end from the power bank into the Micro-USB port in the raspberry to power up the raspberry.

Wait for 15 seconds in order for the boot up process to complete in the raspberry. Green led on the raspberry will indicate that the raspberry has been powered up properly.

3. APPLICATION SETUP

In the following steps, we are going to look at how to interact with the application to let the drone fly automatically. The option to use the Thermal Camera will also be described.

a) **Connection with the Drone**

Open the ThermaDrone application, you will be presented with a screen like the one illustrated in Figure 2. The "OPEN" button will be grey-out, to enable this button connect the USB cable to the phone and then to the remote controller. The Drone will by the application and the "OPEN" button will be enabled.
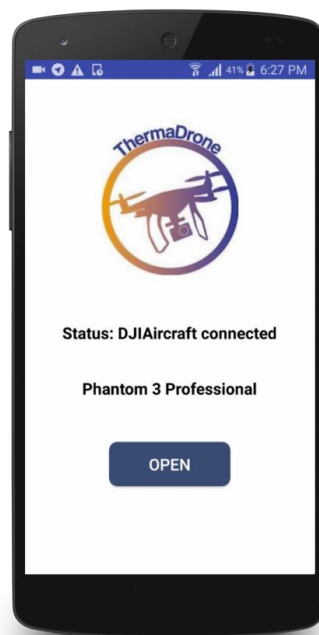

Figure 2

b) Allow GPS

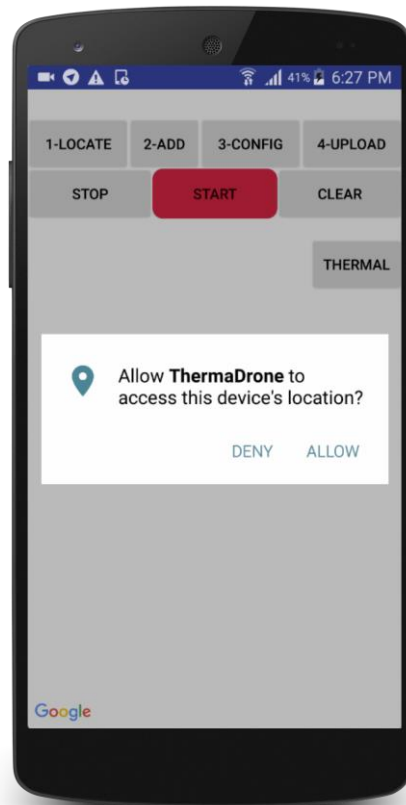Click on the "OPEN" button, a message stating that app requires to be allowed to GPS will be presented, Figure 3.

Figure 3

c) **Follow the steps to setup the flight**

- *Locate*: When this option is chosen, the application will register the position of the drone on the map (Figure 4, Figure 5).
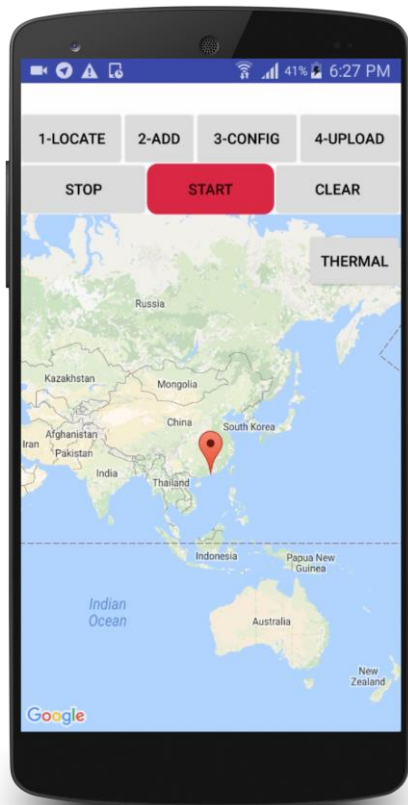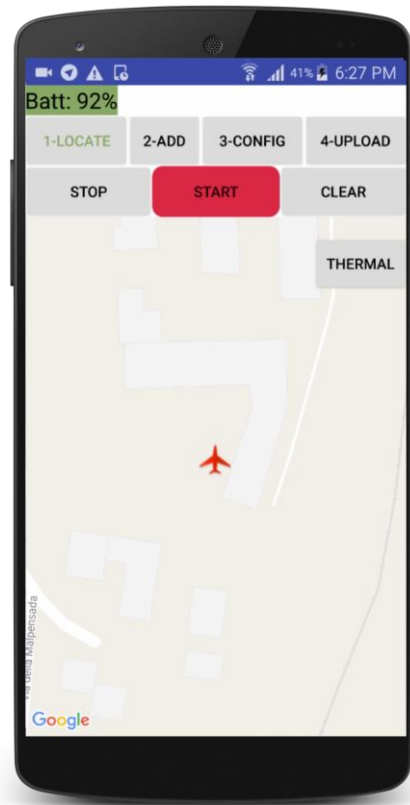

Figure 4

Figure 5

- *Add*: On this button, the application will let us add waypoints on the map. Waypoint define the path that Drone will be following. Add as many waypoints as needed, the best practice is to keep them below 5 waypoints. Once completed tap again on the button labeled "Exit" (this will stop the clickability of the map avoiding errors) (Figure 6).

- *Config*: With the *Config* option the application will let us set a base altitude (mt) and a speed (low, mid, high) (Figure 7).
- *Upload*: The application will upload the data defined on the previous stages to the drone and will open the Wi-Fi settings page. On the Wi-Fi setting page connect to "ThermaDrone" WLAN which is the one being serviced by the Raspberry.
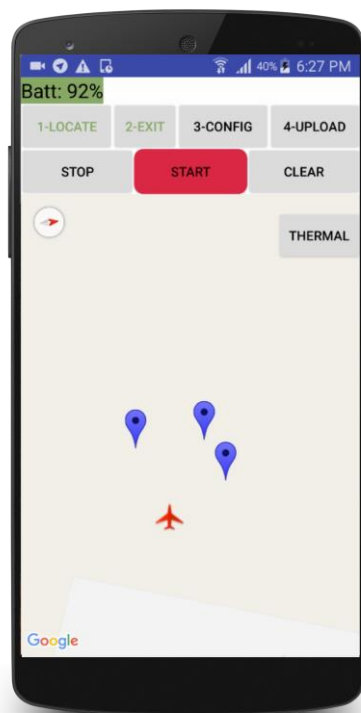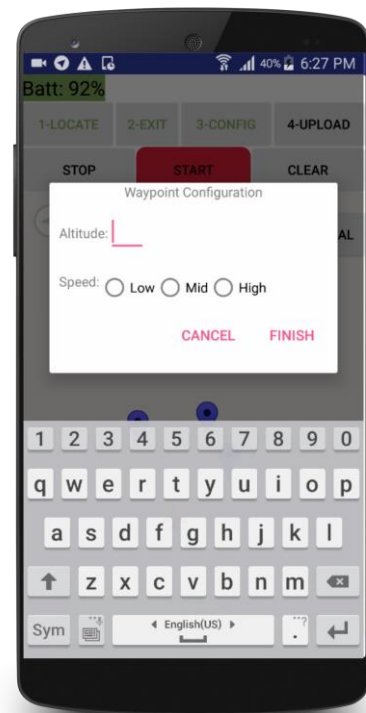

Figure 6

Figure 7

- *Start*: The drone will start to fly in a couple of seconds, we will be able to see the drone's icon moving on the map and, if we click on the "thermal view" button, we will see the thermal streaming (Figure 8).
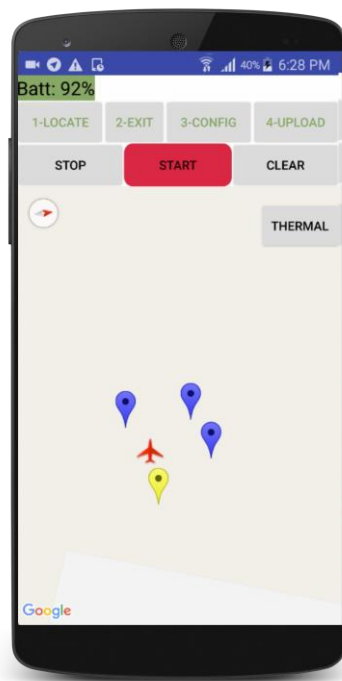
- *Clear*: If we click on this button, the map will delete all the waypoints that where defined previously. The it is possible to set waypoints from the beginning.