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## **Module 2: SOP Of Using Drone**

### **Session 8:**

- \* Mission planning in the GCS**
- \* Flight modes**
- \* Mission Setup**



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## Mission planning in the GCS

- Open GCS application
- Navigate to Planning screen by clicking on PLAN tab in the tool bar
- Select (waypoint) from the right side tool bar
- Add take-off point by clicking on the screen
- Select (Survey) from the right side tool bar
- A survey polygon will be created, re-shape the polygon based on the farm dimensions
- Edit the polygon parameters such as, entry position, altitude, direction, spacing based on the operation requirements in the command tool bar
- Again Select (waypoint) from the right side tool bar Add point and change the command to RTL in the bottom command toolbar



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- Click on Sync menu on the right side tool bar
- Select save to file option
- Dialog box will be opened
- Browse to the location to save and click OK The mission plan will be saved for future use
- Once the vehicle's communication is established with GCS, click on the upload required tab on top of the GCS plan screen and wait for the plan to upload.
- "Done" message will pop up once the mission is uploaded



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## **Mission planning from Marking system**

- Download the mission plans from the GPS handheld device to the GCS tablet
- Open GCS application
- Navigate to Planning screen by clicking on PLAN tab in the top tool bar
- Click on Sync menu from the right side tool bar
- Select load from file option
- Dialog box will be opened



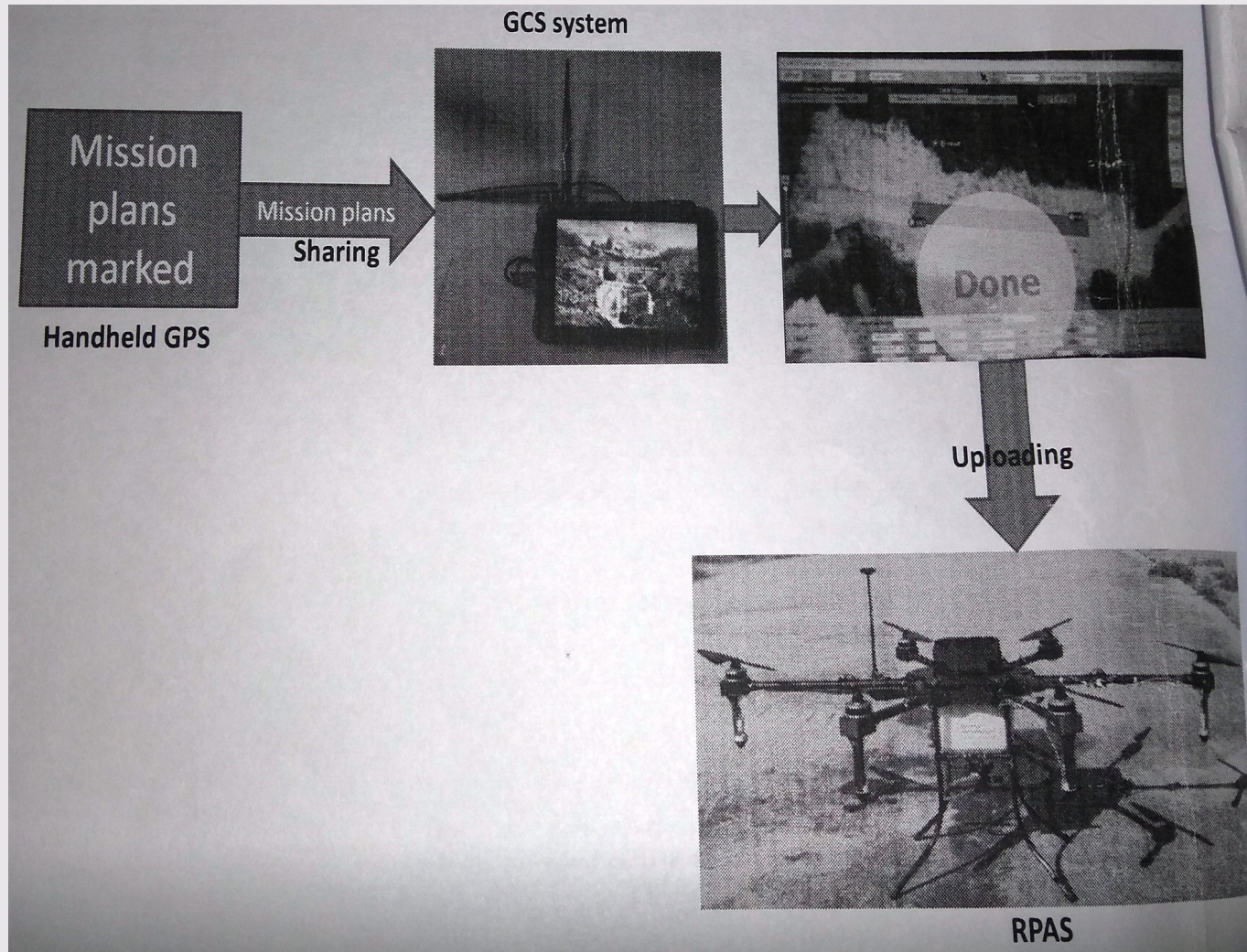
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- Browse to the location where the mission plans are saved to
- Select the appropriate mission and click OK
- The mission plan will be displayed in the PLAN screen of the GCS
- Once the vehicle's communication is established with GCS, click on the upload required tab on top of the GCS plan screen and wait for the plan to upload.
- "Done" message will pop up once the mission is uploaded



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## Flight modes

- Three flight modes are assigned to a three way switch in the RC transmitter as shown.







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- At a time maximum of three modes can be used on the RC Transmitter
- Flight modes are assigned to Channel 5
- **Manual-** Manual mode is GPS assisted mode, where the RPAS is in pilots control for inputs, in case of no input from the pilot, RPAS will hover In the same position.
- **Auto-** Auto mode is to perform pre planned autonomous tasks, which are fed to the Flight controller
- **RTL-** RTL (Return to launch) is a failsafe mode, in RTL mode RPAS will return to the take-off point and land at that point
- **LAND-** LAND mode will command the autopilot to land RPAS at the current point



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## Mission Setup

**Below are the precautions to be kept in mind while planning/carrying out field operations**

- Observe 20% reserve SoC of battery (37 V based on test data )
- Battery failsafe voltage shall be set to a suitable value, based on mission profile and reserve level recommendation
- Plan mission within the communication envelope



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## Uploading and Starting Mission

- Once the plan is uploaded
- Navigate to Flying screen by clicking FLY tab in the top toolbar
- The uploaded waypoints can be seen in FLY screen as well
- In FLY screen a start mission dialog box with a slider will pop-up at the bottom of the screen as shown in the figure
- Now Check your mission plan file before you upload
- Long Press the Hardware safety switch on top of GPS module to



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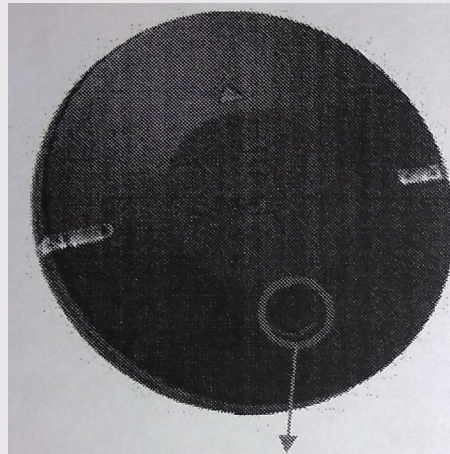
## **ARM the RPAS**

- To start the mission Slide the bar and the RPAS will start the mission
- Mode will change to Guided, RPAS will ARM and will start the mission in AUTO mode.
- Keep monitoring the parameters in the FLY screen during Flight.
- Pilot should be attentive for any emergency situations to take over



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**Hardware  
safety  
switch**

**CAUTION**

**NOTICE**



**GCS with Start mission option**



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**Thank you...**