MoM – Meet Team 41 with Dr. Suraj Bonagiri (Arka Aerospace)

Date: 12-Feb-2024
Duration: 1 hour

Key Points:

Agenda: Discussion on the layout and features of the screen interface for the anti-drone system. Planning for upcoming tasks and deadlines.

- **Screen 1 Features:**
  - The map should occupy the left 66% of the screen.
  - The anti-drone should be centered on the screen, with the map displaying the region within a 500m radius around the drone.
  - A dynamic compass should be displayed at the top right-hand side panel, utilizing magnetometer readings from the tablet to rotate accordingly.
  - Implement a grid view of the map with a grid scale of 100m x 100m.
  - Include a top header in the GUI with basic settings, including the option to toggle the grid display on the map.
  - Provide an option to select rogue drones by clicking on them.
  - Once selected, activate buttons and display a circular border around the selected drone.

    - Enable smooth zoom in/out functionality from a 500m view to the distance of the rogue drone, ensuring visibility of both drones on the map.
    - Activate "KILL" buttons exclusively for enemy drones, accompanied by warnings for friendly drones to prevent accidental activation.
    - Display trajectories of rogue drones for the last 10 minutes, with trajectory colors indicating drone altitude (green for higher altitude, red for lower altitude).

- **Status Tab (Screen 1, Right side, 33%):**
    - Include indicators for signal strength, ground radar strength, drone strength, drone port, and battery levels.
    - Provide text fields for ammunition and battery status.
    - Include buttons such as "RTH" and a slide confirmation mechanism.

- **Screen 2 Features (During Follow):**
    - Display the map.
    - Show distance between enemy and friendly drones with a legend on the bottom right corner, utilizing different color codes for each type of drone.

- **Screen 3 Features (During Kill):**
    - Display the anti-drone fixed at the center of the screen.

    - Implement zooming and spanning functionalities based on the position of drones.
    - Incorporate VPN data from drones.

- **Tasks for March:**
    - Implement camera features, including UVC and detections.
    - Integrate video feed on GUI with AI detections.
    - Develop a settings tab, including functionalities such as checking for updates and toggling between night mode/day mode.
    - Integrate MAVLINK messages and validate the functionality of each.
    - Implement features to calculate distance between drones and time to kill.
    - Work on tablet-related tasks:
    - Access sensors including GPS for user position and magnetometer for direction.
    - Ensure the map rotation based on the tablet's direction.
    - Optimize polling rate for better performance.

- **Database-related tasks:**
    - Encrypt stored data.
    - Define and store important positions in the permanent database.

- **Tasks for Week 4:**
- **Screen 4 (Post Kill):**
    - Include a status bar displaying kill status.
    - Provide options for re-engagement or returning back.

- **Screen 5 (Recovery):**
    - Implement a status bar with priority navigation directly on the GUI.
- **Extras:**
    - Include haptic and sound feedback for popup messages