

# PROJECT PLAN DOCUMENT

## Team - 41

Project number	<b>41</b>
Project Title	<b>GUI for Anti-Drone System</b>
Document	<b>Project Plan</b>
Creation date	<b>31/01/2024</b>
Created By	<b>Medha Prasad, Vinit Mehta, Manasa Kalaimalai, Prithvi Karthik, Shailender Goyal</b>
Client	<b>Suraj Bonagiri: Founder, Arka Aerospace (Mentor)</b> <b>Arka Aerospace Pvt. Ltd. (Organization)</b>

### Brief problem statement

The project aims to further develop GUI for an Anti-Drone System that addresses the increasing challenge of small UAV airspace violations along Indian borders by developing an Anti-drone system. The GUI, built with Rust and Tauri, is currently in progress and requires additional features. These include user controls for engaging drones, dynamic map zooming based on drone proximity, visual representation of drone trajectories, kill markers on the map, a catalog for recorded events, and a settings tab for functionalities like updates and theme selection. The goal is to create an intuitive and user-friendly interface for army personnel, ensuring ease of use for individuals with minimal educational background.

### Team Members

- Medha Prasad 2022101034
- Vinit Mehta 2022111001
- Manasa Kalaimalai 2022101131
- Prithvi Karthik 2022101020
- Shailender Goyal 2022111023

### Team Communication

The team will maintain regular communication via WhatsApp and schedule weekly in-person meetings to review progress. Meeting times will be flexible, accommodating all team members' availability. Additionally, weekly client meetings will be held with the entire team present, at a mutually convenient time.

## Development Environment

The following Programming tools, Languages, Productivity tools and Project tracking tools would be used in our project:

- VS Code
- Rust
- Tauri
- NodeJS
- Yarn
- Typescript JS
- React
- XState
- Taskade
- MS Word
- WhatsApp

## Milestone Schedule

Milestone	Due Date	Release	Deliverable?
<i>Create project synopsis</i>	<i>25/01/24</i>	<i>R1</i>	<i>No</i>
<i>Create status tracker document</i>	<i>25/01/24</i>	<i>R1</i>	<i>No</i>
<i>Create project plan</i>	<i>31/01/24</i>	<i>R1</i>	<i>No</i>
<i>Drone Surveillance and Tracking</i>	<i>31/01/24</i>	<i>R1</i>	<i>Yes</i>
<i>Status Monitoring and Maintenance</i>	<i>31/02/24</i>	<i>R1</i>	<i>Yes</i>
<i>User Configuration and Settings</i>	<i>31/02/24</i>	<i>R1</i>	<i>Yes</i>
<i>Threat Response and Engagement</i>	<i>31/03/24</i>	<i>R2</i>	<i>Yes</i>
<i>Kill Confirmation</i>	<i>31/03/24</i>	<i>R2</i>	<i>Yes</i>

## Team Member Contribution

### Release 1:

#### Drone Surveillance and Tracking:

Feature	Member(s)
<b>Resizing map:</b> Map should take up 66% of the left side of the screen	Vinit

<b>Anti-drone centered map:</b> Reposition the map such that anti-drone is at the center of the map and 500m radius area around it is displayed on the map	Vinit
<b>Dynamic Compass:</b> A compass which shows the direction in which the device is facing.	Shailender
<b>Trajectory Display:</b> Trajectory of drone for the last 10 minutes should be displayed as a contour with color coding to depict height from the ground	Medha
<b>Distance Legend:</b> A translucent legend depicting the distance between various friendly and enemy drones at the bottom-right of the map.	Prithvi and Shailender

#### Status Monitoring and Maintenance:

Feature	Member(s)
<b>Reposition buttons:</b> After enlarging the map, the buttons on the bottom of the screen should be moved to the right-side bar.	Vinit and Manasa
<b>Status Tab:</b> Show various fields like Battery, Signal Strength, Ground Radar Strength, Port Number etc. in the status tab on the right-hand side bar.	Vinit and Medha
<b>Return To Home (RHS) Button:</b> Send the signal to drone to return to the base.	Medha
<b>Mode Change Alert:</b> Every time the mode is changed an alert is pushed.	Shailender

#### User Configuration and Settings:

Feature	Member(s)
<b>Settings Tab:</b> Options to check for any software updates and to toggle between Night/Day mode	Medha
<b>No kill Zones:</b> Defining areas on the map where a kill is not authorized.	Shailender and Prithvi
<b>User Position:</b> Using GPS data display the current position of the user on the right-side bar	Prithvi

<b>Grid Option:</b> Display a grid over the map (100m x 100m scale)	Medha
<b>Header:</b> Display a header with some basic setting options	Vinit

## Release 2:

### Kill Confirmation:

Feature	Member(s)
<b>Slide to “CONFIRM” button:</b> When KILL mode is activated, the user should be prompted with a slide to confirm the kill button.	Manasa
<b>Camera Feed Button:</b> User has the option to switch to live UVC feed for visual confirmation of a “kill”	Prithvi and Medha
<b>Time to Kill Alert:</b> There is a timer that shows the ETK when a kill is initiated.	Medha