



University of
Houston Clear Lake

Building Smart Drones with ESP 8266 and Arduino



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Outline

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- Project Overview
- List of Components
- Finalized list of components
- Assembling
- Calibration
- Design and Implementation for the Drone
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Introduction



- AmeriDuo teaches hand-on robotics and programming to young students.
- AmeriDuo's mission is to inspire the next generation of great minds to become science and technology leaders and innovators, by engaging them in exciting mentor-based programs that build science, technology, and engineering skills.



Project Overview

- This Project aims to build Smart Drones with ESP 8266 and Arduino by providing step-by-step tutorial for the high school students.
- The process of building the includes
 1. Gathering the components
 2. Calibration
 3. Assembling the components
 4. Build and programming the drone



Lists of components

- Drone frame
- Motors
- Propellers
- Speed controller
- Arduino
- ESP 8266
- GPS chip
- Battery
- ArduPilot

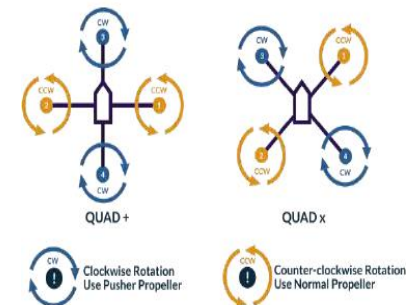
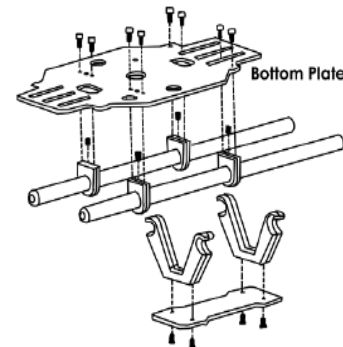
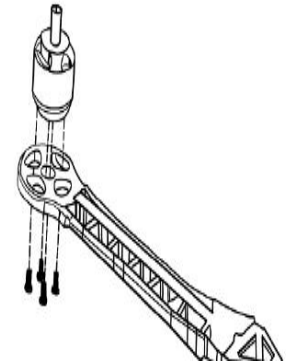


Finalized list of components

- Drone frame
- Motors
- Propellers
- Speed controller
- GPS chip
- Battery
- Ardupilot
- Telemetry
- OTG Connector

Assembling

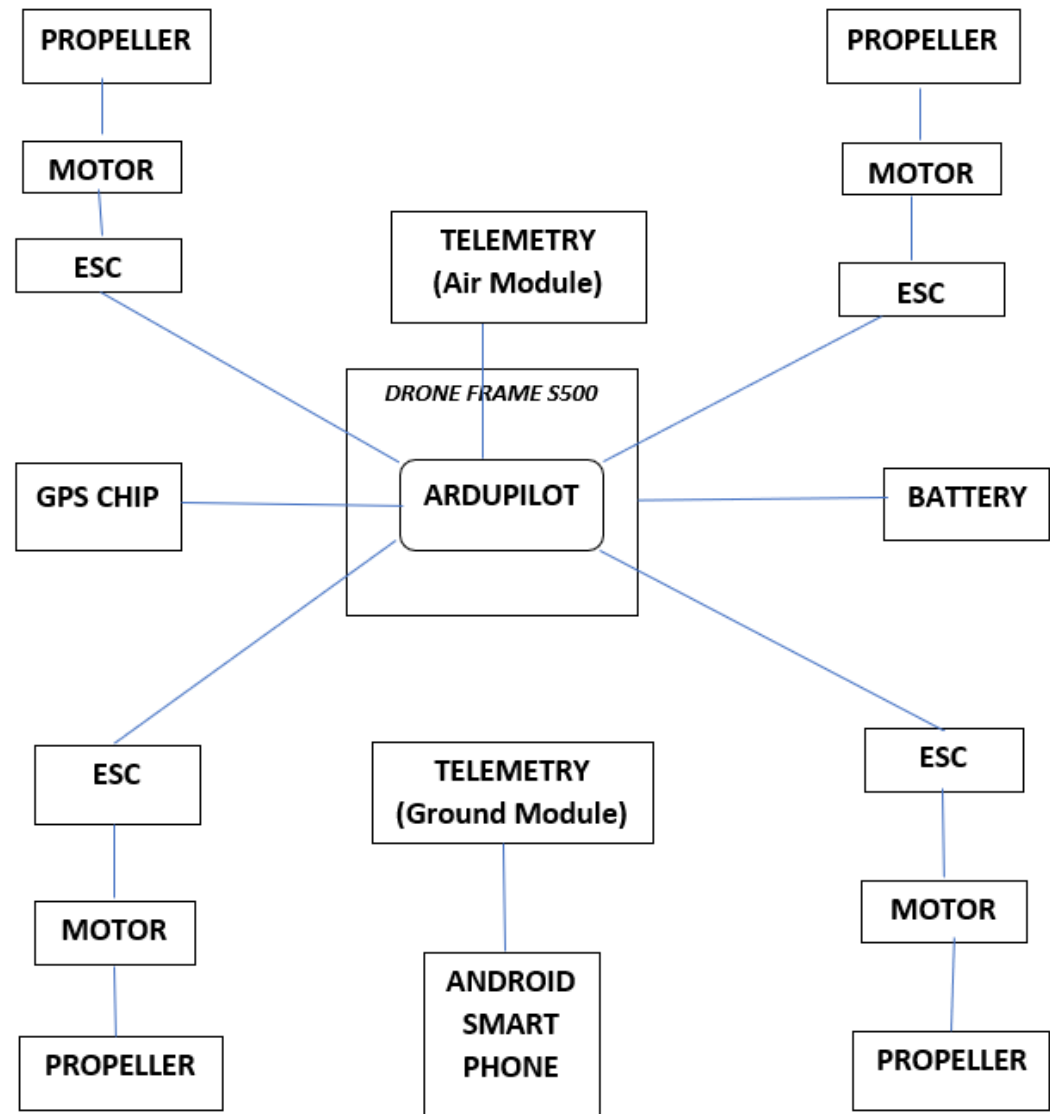
- Assembling the frame
- Connecting the motors
- Connecting the propellers
- Connecting the ESC
- Connecting the ArduPilot
- Connecting the battery
- Connecting the Telemetry



Calibration

- Configuring the quadcopter
- Frame type selection
- Compass calibration
- Access calibration
- Flight mode calibration
- Failsafe calibration

DESIGN

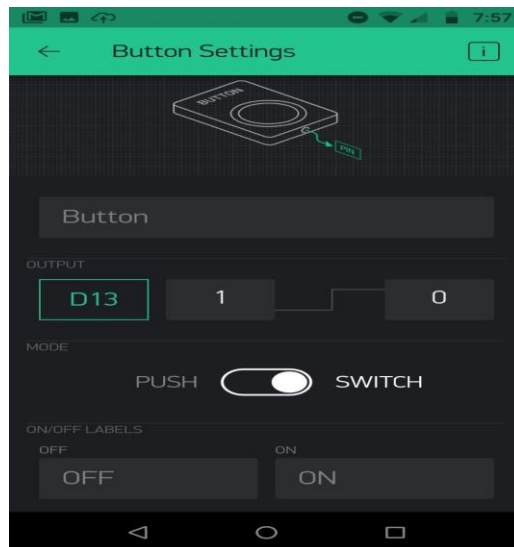




Implementation



- Mission Planner software
- Blynk application
- DroidPlanner2
- APM Planner



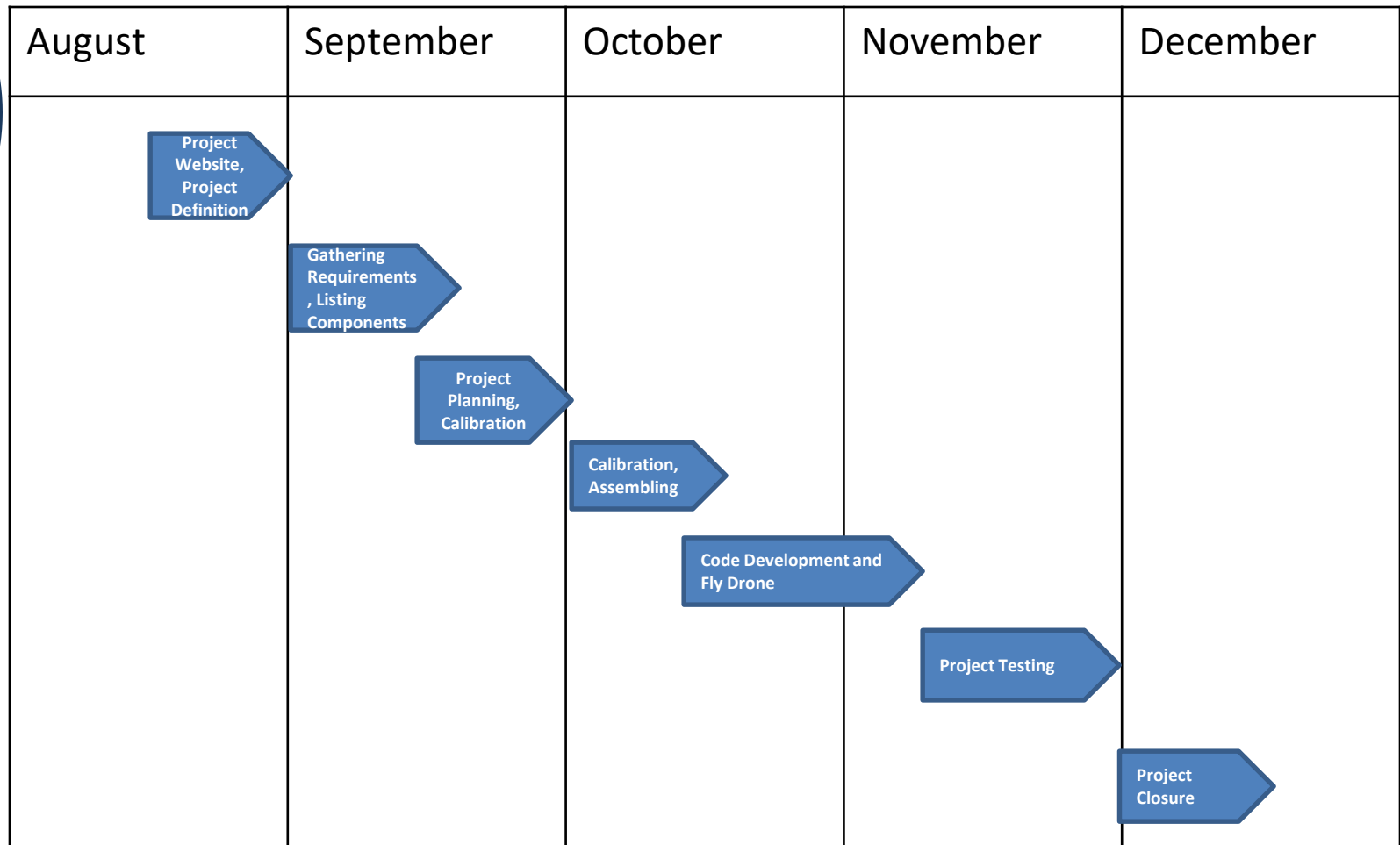
- Programming in C



Challenges

- Finding the compatible components for the Drone.
- Communication from the ground module to air module.
- Signals/Inputs to the Ardupilot.

Project Plan



Milestones

Documents	Due Date
Project Website	3rd September, 2019
Finalizing the Components, Requirement Documents and First Presentation	17th September, 2019
Ordering of Components	24th September, 2019
Design Documents	1st October, 2019
Design Presentation/Mid Presentation	8th October, 2019
Assembling and Calibration	22th October, 2019
Final Report Outline and Finish Building of Follow Me Drone	5th November, 2019
Code Development and Fly drone, Poster Presentation	12th November, 2019
Testing of Follow Me Drone	19th November, 2019
Final Presentation	3rd December, 2019
Final Report	10th December, 2019



Conclusion

- Researched about Assembling of the drone and read book for “Building Smart Drones with ESP8266 and Arduino”.
- Completed collecting the components and Assembling of drone.
- Research about how to communicate drone with the Smartphone.
- Further steps includes Calibration, building drone with coding in software for the control of the drone.





Thank you for your
Attention!

