

Team 8

ECE 480 Progress Report 1

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Assignments and Meetings

The project has had various papers and assignments throughout the semester. Our first assignment was to grab the voice of the customer with an interview. This was finished during week five and a grade of 10/10 was assigned. Once this was finished, a GANTT chart was created in Microsoft Project. This outlined how the project would be split among team members and set time guidelines. The next assignment was another from guest speaker Greg Motter and was the FAST diagram. This outlined the basic and secondary functions of our project and helped shape the concepts behind the project. The final proposal was finished the week of Friday, October 11th and submitted electronically to the facilitator and sponsor. In order to finish the proposal phase of project, an oral team proposal presentation was given October 11th. The design issues paper is the last assignment that was issued and has been completed. This paper outlined the various concerns that would need to be addressed if the RC car drone were to be mass produced as a commercial product.

Hardware Status:

Our initial parts order for our platform, brushless DC motor, servo and batteries were placed on October 7th. Our platform has arrived and we have allocated space for where the parts go and how they need to be mechanically connected to each other. Our other order containing our brushless DC motor, servo and batteries however has had some difficulties. After over 2 weeks of waiting for shipping we asked Roxanne Peacock to check the status of the order. She discovered that they contend that the order has not been paid and she has been dealing with presenting the proof of payment. At this stage in the project we are looking to order a different motor since our first was still questionable whether it would be compatible with our DRV8301 board. The battery and servo are less crucial parts and we may be able to wait for the international shipping time. In terms of the board we have successfully flashed code onto the control card however we have been unable to do any testing of it since the GUI that runs with the code auto-detects a connected motor and without a motor we are unable to initialize the GUI. We have familiarized ourselves with the layout of the board and know how it will electrically connect to our brushless DC motor, servo and batteries. In terms of our servo implementation everything is set to go in terms of hardware and knowing what signals need to be input, it just needs to be incorporated into the code to physically use.

Android Development:

For the android phone, we have utilized the onboard sensors in order to collect data. The RC drone requires information from the GPS and camera in order to meet the design specifications. RFO Basic! is used to collect the data and can be stored with a timestamp to a log file. The next step is setting up the data transfer application. In the meantime, we have explored the use of Java to implement the data collection application. We have started Java development and have various code examples to initialize the sensors and begin data collection. We have also looked at working example codes written in java to send data using TCP/IP networks. TCP allows data streaming and is the current solution for drone data transfer.

Bluetooth Connection:

Research indicated that bluetooth is capable of supporting up to seven devices on a network. This development would allow a second Android phone to control and receive data from the original phone mounted onto the drone. Since bluetooth requires a line of sight for any longer range application, this advancement will not benefit the project. We've received an additional Bluetooth radio, but we have no supporting documentation so we are waiting on a sample program that initializes and pairs the phone to the radio. Once the radio is paired with the phone, we can use the BlueTerm emulator to send ASCII codes. These ASCII codes can be interpreted by the microcontroller for simple binary commands such as move at a constant speed or turn the front wheels 45 degrees.