Final Project Proposal

Year: 2018

Semester: Spring

Team: 14

Project: Super Sick Drone Beverage Team

Creation Date: 10/23/2017

Last Modified: 1/10/2017

Team Members (#1 is Team Leader):

**Member 1:  Rahul Gangwani Email: rgangwan@purdue.edu**

**Member 2:  Thomas Bosler Email: tbosler@purdue.edu**

**Member 3:  Justin Seeke Email: jseeke@purdue.edu**

Member 4:  Imad Sheriff Email: isheriff@purdue.edu

1. Project Description:

This project is a drone that receives drink requests from users through an app interface and delivers the selected beverage to the user through GPS navigation. The app will be user-friendly and support the ability to choose drink options from a list. The app will then send the order to a drone through a shared server, and the drone will display the order to the bartender on an LCD screen. The drone will also use mechanical servos to grasp and release the drinks that are distributed by the bartender.

2.0 Roles and Responsibilities:

1. Rahul Gangwani – Team Leader

Rahul has gained leadership and communication experience through his experience in Boiler Gold Rush. This will be valuable for taking on the role of team leader. Rahul’s technical skills consist of embedded systems and some PCB design.

1. Justin Seeke – Systems Engineer

Justin has had a lot of experience with high level design from ECE 337 and 437. He makes sure that all components of the main design are considered and all ideas are organized in a coherent manner. Justin’s technical skills consist of data structures and algorithms, scripting, database design.

1. Thomas Bosler – Hardware Engineer

Thomas has experience with soldering and 3D printing from ECE 362 and has knowledge of drone design from personal hobbies. He will be responsible for soldering the PCB and packing the final product.

1. Imad Sheriff – Software Engineer

Imad has had experience with data structures, version control, a plethora of programming languages, and file management from his work in ECE and various internships. He can also make secure design solutions from his work in ECE 404 and will be responsible for code management and app development.

2.1 Homework Assignment Responsibilities

|  |  |  |  |
| --- | --- | --- | --- |
| *Design Component Homework* | | *Professional Component Homework* | |
| 3-Software Overview | RG | 9-Legal Analysis | RG |
| 5-Electrical Overview | JS | 10-Reliability and Safety Analysis | JS |
| 7-Mechanical Overview | TB | 11-Ethical/Environmental Analysis | TB |
| 8-Software Formalization | IS | 12-User Manual | IS |

RG: Rahul Gangwani JS: Justin Seeke TB: Thomas Bosler IS: Imad Sheriff

Figure 1. Assignment Responsibilities

3.0 Estimated Budget

@tom pls make a chart detailing as much of the budget as you can ☺

|  |  |
| --- | --- |
| Mechanical | Estimated Cost |
| Flight Ready Drone Frame | $250.00 |
| 3D printed frame for holding drinks | $20.00 |
| Remote controller | $500.00 |
| Electrical |  |
| Printed Circuit Board | $50.00 |
| Batteries | $90.00 (2 @ $45.00) |
| LCD | $40.00 |
| Servos | $10.00 (2 @ $5.00) |
| Other |  |
| GPS System | $900.00 |
| Total Budget | $1860.00 |

Figure 2. Estimated Budget

The mechanical sections includes all premade items that do not require work on our part to create. It also includes the PLA plastic used to 3D print the frame for our attachment.

The next section is the electrical section. this section includes the items that will be soldered onto the PCB as well as the batteries for the drone. A few of these items are already owned by members of the group and will not need to be purchased.

The final section is the other section. This section includes the GPS system/flight system which will require significant programming to implement the gps pinging flight system.

4.0 Project Specific Success Criteria

The following project specific success criteria are proposed for Super Sick Beverage Drone:

1. A functional mobile user interface for placing drink orders
2. An ability to send drink orders from the app to the drone
3. An ability for the drone to grasp a payload
4. An ability for the drone to sustain stable flight
5. An ability to safely deliver the beverage at the target location

5.0 Sources Cited:

Method to carry an item within a retail shopping facility, by D. R. High, C. Natarajan, S.

Chakrobartty, D. C. Winkle. (2017, Mar. 23). *US20170076354*. Accessed on: Nov. 4, 2017. [Online]. Available: https://www.google.com/patents/US20170076354

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