RED Delivery System

(Recovery and Deployment System)

**Team Members:**

Andrea Swanson - [aswanson2016@my.fit.edu](mailto:aswanson2016@my.fit.edu)

Marley Scott - [mscott2016@my.fit.edu](mailto:mscott2016@my.fit.edu)

Miguel Colmenares - [mcolmenares2017@my.fit.edu](mailto:mcolmenares2017@my.fit.edu)

Basilio Caruso - [bcaruso2016@my.fit.edu](mailto:bcaruso2016@my.fit.edu)

Murtaza Fatakdawala - [mfatakdawala2016@my.fit.edu](mailto:mfatakdawala2016@my.fit.edu)

Akshata Patil - [apatil2016@my.fit.edu](mailto:apatil2016@my.fit.edu)

Syed Faique Al Hussain - [salhussain2016@my.fit.edu](mailto:salhussain2016@my.fit.edu)

George Chen - [gchen2016@my.fit.edu](mailto:gchen2016@my.fit.edu)

Michael Heath - [mheath2017@my.fit.edu](mailto:mheath2017@my.fit.edu)

Nishant Sriram Narayanan - [nnarayanan2016@my.fit.edu](mailto:nnarayanan2016@my.fit.edu)

Joao Nene - [jnene2016@my.fit.edu](mailto:jnene2016@my.fit.edu)

**Faculty Advisor:**

Siddhartha (Sid) Bhattacharyya [sbhattacharyya@fit.edu](mailto:sbhattacharyya@fit.edu)

**Client**:

Markus Wilde - [mwilde@fit.edu](mailto:mwilde@fit.edu)

**Milestone Project Matrix:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Task | Completion % | Andrea | Miguel | Marley | To do |
| Autonomous deployment of the drone to reach target GPS coordinate and return home | 100% | 40% | 20% | 40% | none |
| Enhancing Safety Capabilities | 100% | 33% | 33% | 33% | none |

**Faculty Sponsor Meetings:**

Thursdays at 11:00am

**Client Meetings:**

Friday’s at 3:00 pm

**Discussion (Tasks):**

* **Autonomous deployment of the drone to reach target GPS coordinate and return home:** By entering a GPS location, the drone can deploy and land within two meters of that GPS location, and then return back to the home GPS coordinates.
* **Enhancing Safety Capabilities:** In order to ensure the safety of the public and the UAV, the system include a capability that allows a manual takeover from the ground station as well as an automated contingency landing plan that will be executed if the system reaches a state of error. A function has been created in the ErrorHandling state of the state machine that directs the UAV to slowly land on the ground when there is any sort of problem in the flight.

**Discussion (Contributions):**

* **Autonomous deployment of the drone to reach target GPS coordinate and return home:** Andrea and Marley worked on the implementation in the source code that accepts a target location to which the UAV flies to and lands on, as well as the command to return back to home after that target location has been reached. All members of the software team were included in the testing portion of this milestone.
* **Enhancing Safety Capabilities:** Andrea and Marley worked through the possible implementations that can simplify the system so that the ground station can execute safety commands to land the UAV manually as well as implementing the contingency landing plan in the state machine. All three members of the software team were included in the testing.

**Plan for the next milestone:**

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Andrea | Miguel | Marley |
| Implement image tracking program | Research and development | Hardware analysis and implementations | Testing |
| Complete a mission using state machine | Implement code in state machine | Testing | Plan out mission specifics and state change conditions |

**Discussion (Milestone 4):**

* **Implement image tracking program:** This will be achieved by using a camera and an image tracking program to determine an image that signifies the drone is ready for docking.
* **Complete a mission using state machine:** This will be achieved by separating a mission into several parts that will be individually achieved and moved into the subsequent state of the mission, until the total mission is complete.

**Feedback from Faculty Sponsor on each task for the current Milestone:**

* **Autonomous deployment of drone within certain GPS proximity of target GPS coordinate:**
* **Enhancing Safety Capabilities:**

Faculty Sponsor Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

**Feedback from Faculty Client on each task for the current Milestone:**

* **Autonomous deployment of drone within certain GPS proximity of target GPS coordinate:**
* **Enhancing Safety Capabilities:**

Client Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

**Faculty Sponsor Evaluation**

Faculty Sponsor: detach and return this page to Dr. Chan (HC 322)

Score (0-10) for each member: circle a score (or circle two adjacent scores for .25 or write down a real number between 0 and 10)

NOTE: Although the three students are considered to be computer science additions to the group, Andrea is the only student listed as a student enrolled in Dr. Chan’s class.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Andrea Swanson | 0 | 1 | 2 | 3 | 4 | 5 | 5.5 | 6 | 6.5 | 7 | 7.5 | 8 | 8.5 | 9 | 9.5 | 10 |
| Miguel Colmenares | 0 | 1 | 2 | 3 | 4 | 5 | 5.5 | 6 | 6.5 | 7 | 7.5 | 8 | 8.5 | 9 | 9.5 | 10 |
| Marley Scott | 0 | 1 | 2 | 3 | 4 | 5 | 5.5 | 6 | 6.5 | 7 | 7.5 | 8 | 8.5 | 9 | 9.5 | 10 |

Faculty Sponsor Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_