|  |  |
| --- | --- |
| Project Name: | MailBird: An Autonomous Delivery System |
| Team #, Members: | Team 1, Ben Smith, Hugh Dillon, Hunter Thorington, Rick Holloway, Zac Hawkins |
| Report Date: | April 16, 2014 |
| Project Description: | A landing system that can guide a vehicle using IR LEDs within 1 inch of a target. |
| Cycle (1, or 2): | Cycle 2 |
| Cycle Intent: | Use working prototype of IR module to mimic loiter behavior over LED station |

**TASKS**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Planned |  |  | Actual |  |
| Task # | Task Description (Add rows as needed) | Cycle planned for completion | Total planned hours | Planned hours this cycle | Status (% complete) | Actual hours this cycle | Total hours |
|
|
| 1 | Team management | 2 | 60 | 20 | 90.00% | 4 | 12 |
| 2 | IR land control method | 1 | 120 | 20 | 80.00% | 151 | 251 |
| 3 | IR camera implementation | 1 | 40 | 20 | 100.00% | 18 | 83 |
| 4 | Ground Station control method | 1 | 40 | 0 | 100.00% | 0 | 26 |
| 5 | Landing station | 2 | 20 | 10 | 95.00% | 9 | 10 |
| 6 | Reports | 2 | 180 | 100 | 40.00% | 26 | 92 |
| 7 | Marketing display | 2 | 40 | 40 | 15.00% | 12 | 14 |
| 8 | Integration of components | 1 | 100 | 0 | 100.00% | 6 | 113 |
|  |  | **Planned Total** | 600 | 210 | **Actual Total** | 226 | 601 |

1Planned Total should equal (# of team members) x (10 hrs. per week) x (Cycle 1 weeks 6) + Cycle 2 weeks (6) = 12 weeks).

2Assumes 5 hours per week for 12 weeks. Should be mainly team leader(s).

**TEAM MEMBER HOURS**

**Record # of hours each person spent on each task this week, then total by week, cycle, and project.**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  | **Total Hours** |  |
| **Name** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **Week** | **Cycle** | **Project** |
| **Dillon, Hugh** | **--** | **16** | **--** | **--** | **--** | **--** | **--** | **--** | **16** | **49.5** | **136** |
| **Hawkins, Zac** | **--** | **8** | **--** | **--** | **--** | **2** | **--** | **--** | **10** | **41** | **102** |
| **Holloway, Rick** | **--** | **16** | **--** | **--** | **--** | **--** | **--** | **--** | **16** | **50.5** | **144** |
| **Smith, Ben** | **--** | **8** | **--** | **--** | **--** | **3** | **--** | **--** | **11** | **44** | **101** |
| **Thorington, Hunter** | **--** | **--** | **--** | **--** | **--** | **10** | **--** | **--** | **10** | **41** | **118** |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **TOTALS** | **0** | **48** | **0** | **0** | **0** | **15** | **0** | **0** | **63** | **226** | **601** |

**Accomplishments since last status report:**

* Began and nearly completed user manual
* Continued to test and fine-tune IR tracking system in indoor testing facilities
* Planned final documentation and distributed it among team members

**Obstacles encountered since last status report and actions to deal with same:**

* The only cameras owned by the team to take footage of the quadcopter for the senior design fair are GoPros and point and shoot cameras, which, although adequate for shooting decent video, are not ideal. We will try to borrow a DSLR in order to take quality footage for our display.
* While the quadcopter responds to IR inputs, it will often make it first correction in the right direction and fail to make a second correction before it loses the IR LEDs. This means that, while we have successfully integrated the camera into the flight controller, the code needs some tuning in order to get the quadcopter to actually hover over the landing pad.
* We had trouble taking logs of the adjustments that the quadcopter would make during flight to hover over the LEDs. In lieu of logs, we viewed the roll and pitch outputs in the Arduino serial monitor when holding the quadcopter over the LEDs and moving it by hand.
* The LEDs were not bright enough when powered by a 9 V battery. We now power the LEDs using a 12 V adapter connected to an extension cord/outlet.

**Risks facing the project and actions to deal with same:**

* Although the quadcopter successfully sees and respond to the LEDs, the control loop for hovering over the landing pad seems inadequate, and we may not have time to thoroughly debug it. As documentation is due next Wednesday, we will first focus on completing the documentation and display and then debug our control algorithm as time permits

**Objectives for the next week:**

* Prepare display for design fair
* Complete final documentation
* As time permits, continue to debug control algorithm for quadcopter