|  |  |
| --- | --- |
| Project Name: | MailBird: An Autonomous Delivery System |
| Team #, Members: | Team 1, Ben Smith, Hugh Dillon, Hunter Thorington, Rick Holloway, Zac Hawkins |
| Report Date: | March 19, 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 | 20.00% | 4 | 12 |
| 2 | IR land control method | 1 | 120 | 20 | 60.00% | 2 | 102 |
| 3 | IR camera implementation | 1 | 40 | 20 | 98.00% | 18 | 83 |
| 4 | Ground Station control method | 1 | 40 | 0 | 70.00% | 0 | 26 |
| 5 | Landing station | 2 | 20 | 10 | 5.00% | 0 | 1 |
| 6 | Reports | 2 | 180 | 100 | 0.00% | 0 | 66 |
| 7 | Marketing display | 2 | 40 | 40 | 3.00% | 0 | 2 |
| 8 | Integration of components | 1 | 100 | 0 | 100.00% | 6 | 107 |
|  |  | **Planned Total1** | 600 | 210 | **Actual Total** | 30 | 405 |
|  |  |  |  |  |  |  |  |

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** | **2** | **--** | **2** | **--** | **--** | **--** | **--** | **3** | **7** | **7** | **93.5** |
| **Hawkins, Zac** | **--** | **--** | **5** | **--** | **--** | **--** | **--** | **--** | **5** | **5** | **66** |
| **Holloway, Rick** | **2** | **--** | **2** | **--** | **--** | **--** | **--** | **3** | **7** | **7** | **100.5** |
| **Smith, Ben** | **--** | **2** | **4** | **--** | **--** | **--** | **--** | **--** | **6** | **6** | **63** |
| **Thorington, Hunter** | **--** | **--** | **5** | **--** | **--** | **--** | **--** | **--** | **5** | **5** | **82** |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **TOTALS** | **4** | **4** | **18** | **0** | **0** | **0** | **0** | **6** | **30** | **30** | **405** |

**Accomplishments since last status report:**

* Discovered the user code was sending pixel error in millimeters instead of centimeters. The PD controller now sends accurate adjustments based on the error from the IR module to the pitch-roll function.
* We now have a camera lens that will increase our field of view that can be attached to the IR module. We tested different ones to see which one gave us the widest and clearest viewing angle.

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

* The new IR LEDs that we purchased did not work as well as we would have liked. They have a wide viewing angle but once the module is around 5 to 10 feet away the IR LEDs are not intense enough to show up as two blobs on the camera. Since we have the new lens on the camera we are hoping that once we get the quadcopter up and flying we will not have to have new IR LEDs. Did some tests this week with different lenses and at different distances which leads us to believe that this will work.

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

* No new risks have been found. The items below are carried over from last week.
* As we said last week, we’re doing a significant code addition. We’re using the best software tools we know to maintain the modified Arducopter codebase. Code checkout and change lists are a good way to mitigate the risk of a lot of wasted time editing code and fixing code that used to work.
* After modifying the flight code, there may be potential for unbounded behavior from the quadcopter while it’s in the air. It seems that the RC controller is still valid for switching modes, so as long as we test in a wide space, we should be able to get the quadcopter back to the ground (in some fashion – crashes are not ideal but at least you still have something to fix).
* Designing good tests that actually prove something is difficult. We’re writing down exactly what data we’re taking and how we plan to prove functionality as we add these tests.

**Objectives for the next week:**

* Get the quadcopter up in the air flying over the landing pad so that we can see how the changes we have made affect the quadcopter.
* Attach the lens on the camera without distorting the image.
* Find a testing area at least 20 feet high without much wind.