Project Name:	MailBird: An Autonomous Delivery System
Team #, Members:	Team 1, Ben Smith, Hugh Dillon, Hunter Thorington, Rick Holloway, Zac Hawkins
Report Date:	March 5, 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 1
Cycle Intent:	Build a working prototype of IR module and use 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	30	26.67%	8	8
2	IR land control method	1	120	120	60.00%	100	100
3	IR camera implementation	1	40	40	98.00%	65	65
4	Ground Station control method	1	40	40	70.00%	26	26
5	Landing station	2	20	10	5.00%	1	1
6	Reports	2	180	80	82.50%	66	66
7	Marketing display	2	40	0	3.00%	2	2
8	Integration of components	1	100	100	100.00%	107	107
		Planned Total1	600	420	**Actual Total**	375	375

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

Name	1	2	3	4	5	6	7	8	Total Hours Week	Cycle	Project
Dillon, Hugh	--	--	--	--	--	12	--	--	12	86.5	86.5
Hawkins, Zac	--	3	--	--	--	10	--	--	13	61	61
Holloway, Rick	--	--	--	--	--	10	--	--	10	93.5	93.5
Smith, Ben	--	1	--	--	--	9	--	--	10	57	57
Thorington, Hunter	--	--	--	--	--	10	--	--	10	77	77
TOTALS	0	4	0	0	0	51	0	0	55	375	375

Accomplishments since last status report:

- The quad copter's PID loop has been changed to a PD loop. While this prevents the PID from converging to 0 it allows us to get better adjustments from the camera.
- Cycle 1 report has been written, the website has been updated and the all documentation has been brought up to date.
- A demonstration was devised and works well in the LAB. Hopefully the same results can be demonstrated today in class.

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

- This section is unchanged from last week. No new development occurred this week. All time was spend on the report and presentation.
- When integrating the camera sensor into the ArduPilot software, we simply changed the error input into the flight controller when we're in our new flight mode. The idea seems to be valid, but the camera error is incredibly sporadic. We've formatted the error correctly (cm) but we think the viewing angle of the camera is causing the error to change very rapidly. This is causing the quadcopter to make drastic adjustments when the error source is the IR camera. To counteract this, we've ordered some lenses to try on the IR camera to increase the viewing angle from 35 degrees to somewhere around 160. Hopefully that will slow our error down, and if not, we will have to adjust the PID gains to make an IR camera-specific controller.

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 due to this being a report 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:

- Plan for Cycle 2. Get all tasked established on the GitHub and assigned to team members.
- Test the new wide-angle cameras to test the effects on the error reporting from the IR camera.
- Test the new wide angle LEDs