Mar 29, 2013

Team 19 End-to-End Prototype Document

**Laboratory #6 : End-to-End Prototype**

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***Work Product***

**This document describes the goals and schedule for the end-to-end prototype. This prototype will be focused on establishing a connection between the base station and the robot, and enabling simple robot movements.**

***Document Revision Information***

**Mar 22, 2013 – Goals and Schedule Created**

**Mar 24, 2013 – Schedule Updated**

**Mar 29, 2013 – Results Documented**

**Approval Sheet**

**All group members whose names are listed below approve of the document and contributed fairly.**

**Morgan, Laura**

**Miaw, Jireh**

**Hauser, Steven**

**Dworak, Catherine**

**Bertoglio, David**

**Pledge**

**On my honor, as a student, I have neither given nor received unauthorized aid on this assignment.**

**Morgan, Laura**

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# Prototype Goals

The purpose of this prototype is to show the user that the major components of the robot system will function. This prototype is focused on basic movements of the robot - moving straight and small turns. This prototype does not yet include sensor reading or the debugger. The main risk of this prototype is integration with our partner group. Our success for this prototype is dependent not only on our effort, but the effort of Group 20.

Our part of the prototype is to control the movement of the robot, while group 20 is responsible for the GUI and sending the movement commands to the robot.

Goals:

Establish connection

Move forward set distance

Move backward set distance

Turn set number of degrees

# Integration Test

## Preparation

Team 19 prepared code to control the movement of the robot. This includes writing methods for creating connection, encoding message, decoding message, moving forward, moving backward, turning, and stopping.

### Milestones

Establish connection between base station and robot

Send message from robot to base station

Receive message on robot from base station

Send message from robot

Receive on base station

Move robot forward set distance

Move robot backward set distance

Turn robot right/left set number of degrees

### Test Schedule

Individual teams write required code: Monday, March 18 – Friday, March 29

Group meetings:

Friday, March 22 at 1:30 pm

Sunday, March 24 at 1:30 pm

Friday, March 29 at 1:30 pm

Meet with partner team: Friday, March 29 at 2:30 pm

Perform Integration test (Teams 19 and 20): Friday, March 29 at 2:30 pm

Document test results: Friday, March 29

Initially, the test was scheduled to be performed on Sunday, March 24, but our partner team was not yet prepared for the test, so the schedule was updated to a give both teams more time to finish their code for the tests. All dates and times in the updates schedule were met.

### What we expect from group 20

We expect team 20 to have a simple, functioning GUI. There should be 4 buttons simulating the w-a-s-d keys on the keyboard. When these buttons are clicked with the mouse, messages should be sent initiating the correct pre-set movement of the robot.

## Realization

Date and Time:

We met with our partner group on Friday, March 29 from 2:30-4pm

Participants:

Team 19: Laura, David, Jireh, Catherine

Team 20: Tyler, Archit

### Results

The connection between the robot and base station was successfully created. A message could be sent from the base station and received by the robot, but acknowledgements cannot yet be sent from the robot.

Instead of having buttons on the interface, team 20 implemented key presses on the keyboard for initiating movement. When “w” was pressed the robot moved forward until “c” was pressed. When “s” was pressed, the robot moved backward until “c” was pressed. When “a” and “d” were pressed, the robot turned left/right 90%.

With the exception of sending acknowledgments from the robot, all of the intended functionally worked.