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Remote controlled indoor cart using mobile application
Progress Report 4

Overview of Progress

Accomplishments: several accomplishments for this stage of the project.

We have a good portion of the cart algorithm movement in place. We have implemented a state machine that gets data from the USART (in a non-blocking manner) and parse messages according to the communication protocol. Messages carry information such as "move-forward" or "move-counterclockwise", etc. In addition, the state machine polls data from the sonar and stops the rover if we are within a certain range of the nearest object (right now we are using 600 as the breakpoint value).

Since the wifly got accidentally burned (read Challenges), we had to develop a non-blocking-get-line from user (through USART) to emulate messages received by wifly. In this way we could continue to develop the logic of the state machine. In theory, once we get the new wifly, we need only to develop a non-blocking-get-line from wifly and feed the state machines these messages instead of the messages received via USART.

Challenges: the wifly got accidentally burned. This posed a roadblock to development which was solved by emulating messages through regular USART. Once the new wifly is received it should be a manner of feeding the state machine messages from wifly and everything should work fine.

Barriers to Success: one of the team members has been unavailable for a significant part of this week's project and hence, the development of the mobile user interface has been very slow. We hope to pick it up tomorrow.

Profile

Progress per Objective

Category	Design Objective	Deliverable	Status
Power	Battery Availability	Using AA batteries	**100%**
Communication	Wireless communication	WiFly	**75%**
Control Protocol	Control the cart	Design of control and data messages	**100%**
Control Protocol	Control the cart	Design two state	**75%**

		machines, one for cart and for control app.	
Cart	Safe halting	Sonar	**100%**
Cart	Ambient reading	Light sensor	**0% - <mark>Probably Won't do it</mark>**
User Interface	Mobile control	Mobile Application for Android. Includes a halt message.	**75%**
User Interface	Server control	Terminal application	**100%**
User Interface	Ambient reading	Light readings	**0% - <mark>Probably Won't do it</mark>**

Milestones
Software

- Mobile Application - 75%
- Server Application - 75%
- Design Communication Protocol - 100%
- Implement Communication Protocol - 75%
- Cart Control Algorithm (movements, safe halting) - 75%

Hardware

- Board Prototyping - 100%
- Board Design - 100%
- Order Components - 100%
- Integration - 50%
- Testing and Debugging - on going process - 25%

A big breakthrough this week was being able to work with the rover platform. We have the rover working with messages received remotely. Another huge success was the correct implementation of the sonar using timers.

There is only one week left for the project. To finalize it we should just plug and play the wifly (for which we have already the drivers working, we only need to implement a non-blocking-get-line), and finalize the mobile application. We should do extensive testing and have everything ready for friday's presentation.