Winter Project Proposal Draft: Autonomous Following Car.

Weilin Ma, Jan 8th, 2018

For this winter project, I plan to implement the control skills into auto control. Inspired by the projects from Weiyuan Deng from last cohort, my idea is to use magnetometer to detect the relative location of a strong magnet carried by me. Then an Arduino car will follow me as I walk, to keep in a certain distance with me.

- I happen to have an Arduino car I just built up but haven't played with. This car is the *"Cherokey"* from DFRobotics.com. It features an Arduino Uno with ATmega328P microcontroller, which happened to be the exact same one as used in Weiyuan's project.
- As I mentioned before, I am going to use the magnetometer to detect relative position and direction of the magnet carried by me. So I plan to mount the magnetometer on the Cherokey with fixed direction. This will directly make the magnetometer frame the Cherokey chassis frame, making it easier to calculate location of the magnet.
- The actuators will be the four wheels controlled by four individual motors. The Arduino Uno board will process the location information and generate the four motors relatively.
- I am still very skeptical about my own ideas and I have a lot of concerns. The biggest concern I have is that I am not sure if the magnetometer will be precise enough. It looks like a very unstable tracking mechanism. So I am still doing research, trying to find a better signal generating-and-sensing mechanism.

This is just an initial idea and a less-realistic version of my winter project proposal. I am open and thankful to all kinds of suggestions. Thank you very much.