

Project Personnel:

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Encoder Project:

The goal of this project is to get a sense for what technologies/devices could be used to make speed measurements while the car is running

Current Ideas:

- Use rotary encoders to measure rpms of motor
- Translate rpms to distance traveled/time to gauge velocity
- Track data from runs

Timeline:

- Get familiar with encoders
 - Run test programs
 - Experiment
 - Look at different options and applications
- Decide on encoder type, or other solution to measure speed
- Write speed measuring program
- Figure out mounting and housing for the module (how will this connect to the current board?)

Required Materials:

- Rotary encoder
- Arduino nano
- Computer
- USB connector
- LEDs?? (for testing)

Helpful Resources:

- <https://lastminuteengineers.com/rotary-encoder-arduino-tutorial/>
- <https://www.youtube.com/watch?v=v4BbSzJ-hz4>
- <https://www.epitran.it/ebayDrive/datasheet/25.pdf>
- <https://create.arduino.cc/projecthub/mircemk/diy-simple-measuring-wheel-with-rotary-encoder-12073d>

Project Description:

This project's main focus is to measure the distance traveled by the car. The data given includes milliseconds passed since the program has started, whether the wheel/encoder is turning in the clockwise direction or the counterclockwise direction, how many clicks have occurred (increase in clicks means the wheel/encoder is turning in the clockwise direction and vice versa for a decrease), and the distance traveled by the wheel/encoder (in meters). The

distance traveled is based on the wheel radius and the number of clicks that happen in a single wheel rotation.

Variables to Change When Using the Code:

- R - which is the radius of the wheels
- N - which is the number of wheel clicks per rotation of the wheel