**Equipment List – S550 Speedometer/RPM**

* [Arduino Board](https://www.amazon.com/ATmega328P-Arduino-Compatible-Arduino-Voltage-Compatible/dp/B0D83J2TJJ/ref=asc_df_B0D83J2TJJ?mcid=673e8321acc03d9d8357e9057be27030&hvocijid=6202480606003411021-B0D83J2TJJ-&hvexpln=73&tag=hyprod-20&linkCode=df0&hvadid=721245378154&hvpos=&hvnetw=g&hvrand=6202480606003411021&hvpone=&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9005550&hvtargid=pla-2281435178778&th=1) (either UNO, Nano, MEGA) – Microcontroller Board
* [CAN-Bus Shield](https://www.sparkfun.com/can-bus-shield.html) – CAN Bus Module (easier to work with)
* [Mitsubishi MCP2515](https://www.amazon.com/gp/product/B01D0WSEWU/ref=ppx_yo_dt_b_asin_title_o05_s00?ie=UTF8&psc=1) – CAN Bus Module
* Battery (Any type) – Between 5V-12V if more we can use a [buck convertor](https://www.amazon.com/dp/B07WQJ2GD6?ref=cm_sw_r_cp_ud_dp_7S9AV82KN8PYS19QRX5C&ref_=cm_sw_r_cp_ud_dp_7S9AV82KN8PYS19QRX5C&social_share=cm_sw_r_cp_ud_dp_7S9AV82KN8PYS19QRX5C&previewDoh=1)
* Connector Wires
* [S550 Cluster](https://www.redlineautoparts.com/ford/2015-2022-s550-mustang/2016-2017-ford-mustang-gt-s550-5-0-instrument-gauge-cluster-manual-25k-fm001/) (already have need to disassemble) – Gauge
* Might need more parts (especially for ignition), but this is the basics

Idea:

Using the Arduino/CAN-bus we can contact the simulator to determine the speed and RPM of the vehicle. Through the CAN bus lanes, we can then contact the Gauge and have it display the correct value as well as light up on start. Will have to first remove the Speedometer from the Car in order to work with it, have to figure out a way to connect the Simulator with the Arduino and then figure out how to get ignition to work with the Arduino. C Language will be used for the Arduino interface and CAN Seeed Library for the CAN-Bus.

References:

* Built examples
  + <https://github.com/EricTurner3/s550-canbus>
  + <https://github.com/thomastech/CAN2Cluster/tree/master>
  + <https://www.mustang6g.com/forums/threads/interactive-instrument-cluster-display.173351/#post-3511854>
* Disassembly:
  + <https://www.youtube.com/watch?v=aS0UWqNWVHQ>
  + <https://www.youtube.com/watch?v=qfJ0ZQpPo44>
* Other:
  + <https://www.youtube.com/watch?app=desktop&v=lkBILe55LQ8>