# JARC - Racecar Data Acquisition System & Emulator

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Product Overview

- Developed an OBD-II emulator, which can simulate the same sensor data sent by a vehicle. The emulator is helpful in testing devices that use the OBD-II protocol, such as our data logging system, at a lower than market cost (1).
- Modified an OBD-II to Arduino adapter kit to use as a data logger (2). The logger records sensor and GPS data for amateur racers at far lower costs than current tools (3).
- Developed a data graphing software, which displays the vehicle's logged racing data in a graphical form.

OBD-II Emulator
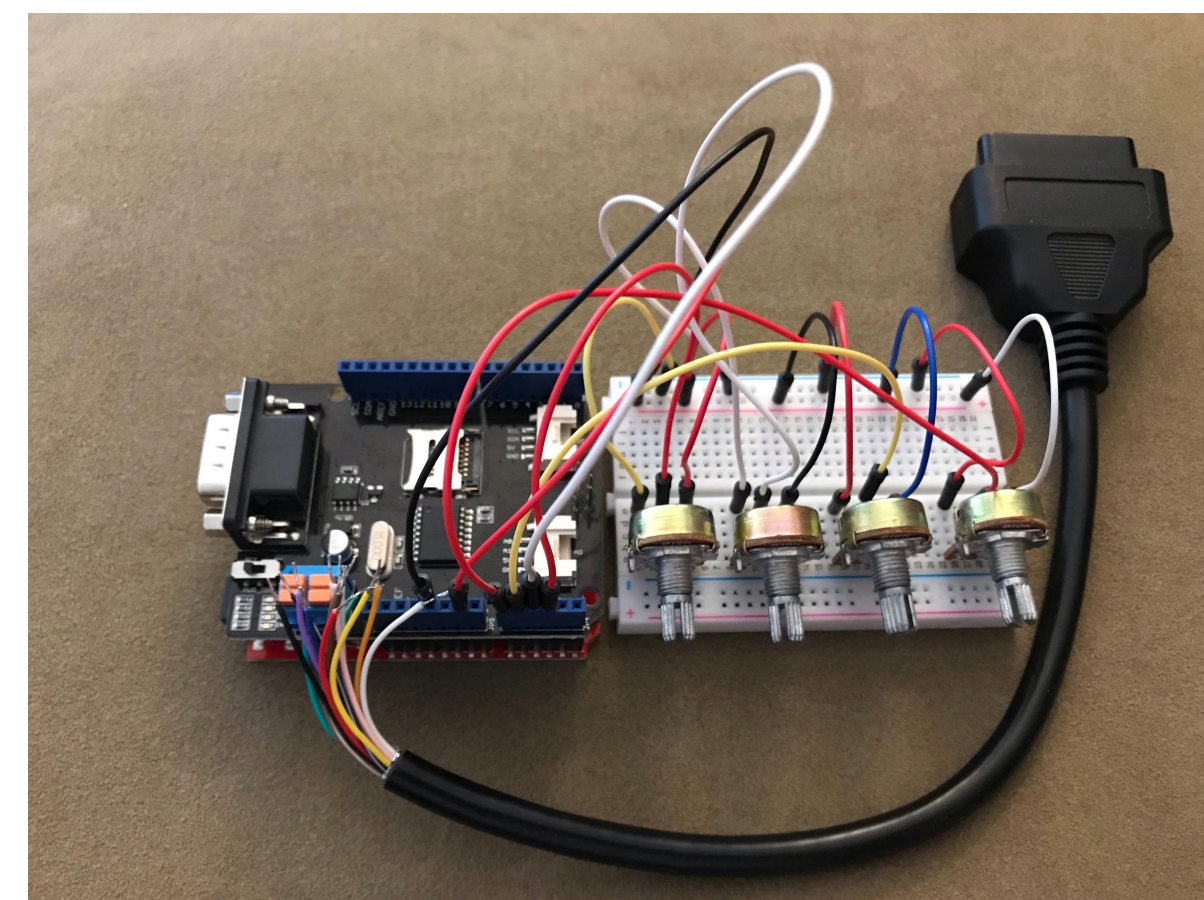
The emulator simulates OBD-II data sent by an actual vehicle via an OBD-II port.

Data Logger
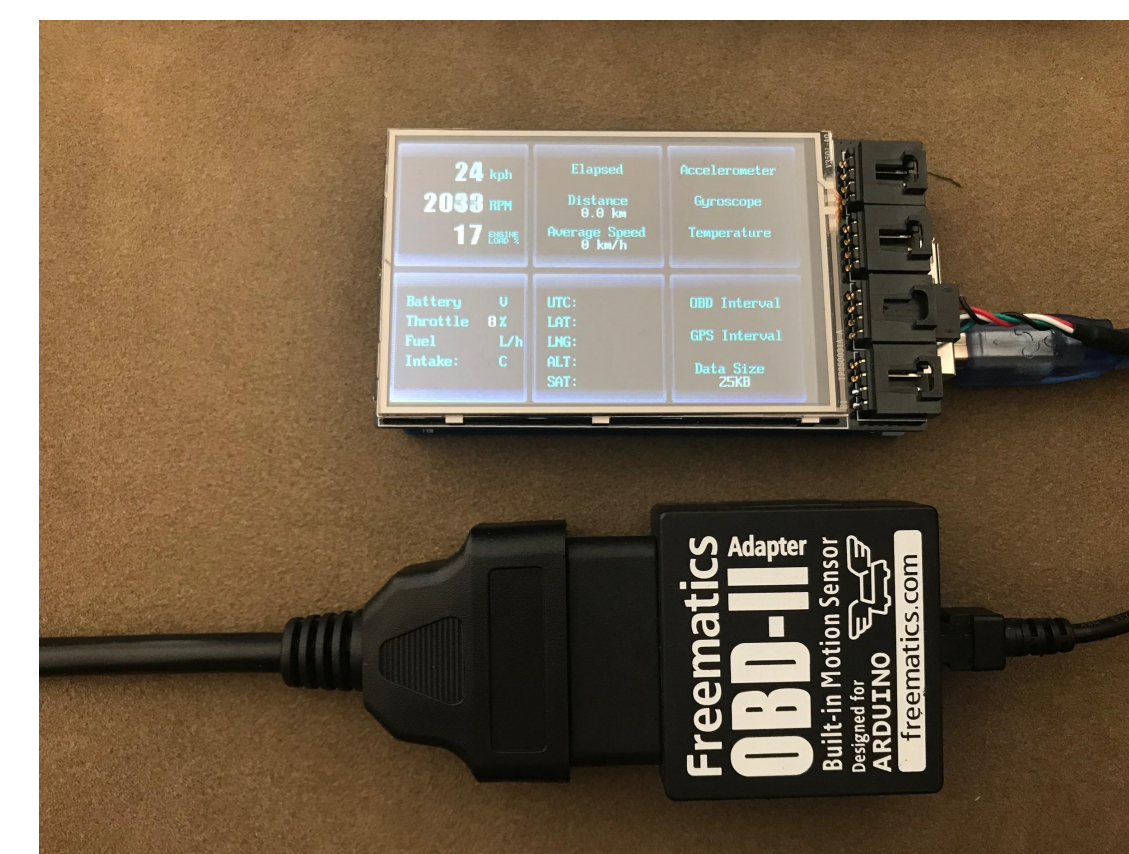
The data logger uses a modified OBD-II to Arduino adapter kit to record vehicle data.

Data Graphing Software

The graphing software displays recorded data from an SD card or live data via serial cable.

Future Development

- Adding wireless capability to the data logger would allow live viewing of a vehicles' sensors.
- Additional sensors, such as LIDAR sensors, can be integrated into the system to track a race car's distance to objects on a track.
- The emulator can be expanded upon by adding more precise and useful controlling tools, such as a slider for setting throttle percentage rather than a knob.

Team JARC

Chandler (EE):
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Created the data graphing software for live data and data from a SD card.
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Ahmad (EE):
Worked on the OBD-II emulator and documentation of project.
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References

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3. Petrel Data Systems. (n.d.). *Solostorm AutoCross Data Logger*. Retrieved from https://www.petreldata.com/product/solostorm-gps-obd-ii-and-video-logger-for-android-v2-2/

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