

This project presents a low-cost, efficient Data Acquisition System (DAQ) for real-time vehicle parameter monitoring in an electric formula car. The system is built using an ESP32 microcontroller and integrates GPS, IMU, pressure, current, speed, and suspension sensors, communicating over CAN and analogue interfaces. The aim is to collect and process dynamic performance data during testing or racing scenarios.

## HARWARE COMPONENTS

- ESP32 DEV KIT C (38 PIN) - MICROCONTROLLER
- MCP2515 CAN MODULE - Enables CAN Communication
- ASM330LHH IMU - Provides Acceleration and Gyroscope Data
- UBLOX NEO 6M – For GPS Data
- SPEED SENSORS – Measures Wheel Speed
- PRESSURE SENSORS – Monitor Hydraulic Systems
- POTENTIOMETERS – Monitor Suspension Compression
- VOLTAGE DIVIDER and OP AMPS
- MICROSD CARD READER
- PIN CONNECTORS

## →2 LAYER PCB DESIGN TYPE