

#### 40. Automatic Air Pressure Monitoring System.

##### ABSTRACT—

Tyre pressure monitoring system (TPMS) is an electronic system that monitors the air pressure of an automobile tyre and alerts the driver by displaying the real pressure or just a warning light. This project is focused on designing and developing a direct TPMS which the measurement of the air pressure is taken directly using pressure sensor. Suitable components are researched to design the prototype. Main components needed are pressure sensor, voltage-to-frequency converter, transmitter, receiver, and frequency-to-voltage converter. To power the prototype, energy is chosen through wheel rotation. Main components need to be calibrated to ensure the consistency and precision of the prototype in reporting the pressure. Calibration for pressure sensor is performed by simply applying a known value of pressure and the output voltage is measured. For voltage-to-frequency and frequency-to-voltage converters, a known value of voltage or frequency is applied and the output is monitored using voltmeter and oscilloscope. The results show promising data by proving the relationship between the input and output for each component. As for the conclusion, although there are many problems and limitations faced, this prototype is a promising product in real world application.