VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELGAUM

A PROJECT REPORT ON

SARATHI, AN AUTOMOTIVE DIAGNOSTICS, FUEL EFFICIENCY AND EMISSIONS MONITORING USING CAN

UNDER THE GUIDANCE OF

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ABSTRACT

Automotive electronics is the next growth story in the automotive industry. The aim of this project is to build a reconfigurable digital instrument cluster design, to replace analog gauges on automobiles. Sensor values in actual automobiles modeled in terms of potentiometer outputs is acquired via a simple two node Controller Area Network (CAN), and processed in a graphical programming language LabVIEW, developed by National Instruments. Hardware implementation is using an ARM Cortex M3 based microcontroller with an inbuilt CAN interface. A warning system to alert the driver in case set limits on critical vehicle parameters like speed, engine temperature, rpm etc. are violated is implemented. GPS based vehicle tracking and identification, and an innovative approach towards monitoring of emissions over the internet is also developed. Open source hardware prototyping platform Arduino is used as a major a major component in this project. An Internet of Things platform which is a free sensor data streaming web service Cosm.com is used for the project implementation. With the necessary support, validation and regression testing the prototype can redefine the way automotive instrumentation is thought about and implemented in real time.