Poster Preparation

1 Problem Statement

1.1 Goal

Our project was to develop a code base for future Arduino-based prototyping for an existing transmission control system. CAN compatibility is required for integration with the existing testbed and other development tools.

1.2 Requirements

The delivered code base should consist of independent modules that have no external dependencies. The operations accomplished by the modules should be complete and require minimal customization.

1.3 Objectives

- Implement sensor reading for Arduino

- Transmit useful readings by CAN protocol

- Implement data logging on a receiving CAN node

- Integrate project-specific sensor into existing network

1.4 Applications

- Integration of digital and analog sensors with existing testbed

- Rapid prototyping with modules from code base

2 Work accomplished

- Integration of digital sensor with Arudino-based controller

- CAN network integration of Arduino

    - Standard CAN integration

- Implementation of J1939 variant

- Integration of sensor into CAN network

  - Digital sensor
  - Analog sensor with external circuitry

- Real time data logging of transmitted network information

- System validation using industry tools and typical application parameters

- Out-of-the-box readiness of modules

3 Conclusions

- Agile concepts from software development useful for various environments

- Important part of project was selecting tools and systems, not developing from scratch

- Team work not comparable to previous experience and required adaptive approach