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LOW COST MINI HIL TEST TOOL

OVERVIEW

The Equipment and Manufacturing Platform team at Continental Automotive Systems designs and develop automated test equipment for Engineering, Design and Product validation of several automotive ECUs. Most of the equipment consist in COTS (Commercial Off-the-Shelf) technology. Programs have budget to build 1 or 2 test systems at the most due to the high cost of the testers. One of the elements that significantly impact the overall cost of the tester is Vector CANoe and Vector's hardware. CANoe is used to communicate with the DUT (Device Under Test) and is the one in charge to execute the full test scenario. During development phases, the DUT product development teams need a tool to execute the same or similar tests that the tester executes during validation phases but due to the high cost of Vector CANoe licenses early engineering testing is not always executed, teams are limited only to unit testing (white box), creating bottlenecks during development and most of the time they must wait until the final tester is available and ready to verify product issues.

GOAL

Design and development of a low-cost Real-Time prototype test system that has the capability of running essential/core CAN tests in early phases of DUT development. This tool will use an STM32H7 microcontroller which has a CAN subsystem compatible with CAN 2.0 and CAN FD. The low-cost mini HIL test system will be able to run core tests periodically without the need of any special licenses or additional hardware.

SPECEFICATIONS

- Microcontroller board: NUCLEO-H723ZG with the following modules:
 - SPI module for TFT 1.8" screen.
 - CAN FD module configured for HS.
 - Ethernet for TCP communication.
 - GPIO for push buttons and LEDs.
- CAN transceiver NXP TJA1441AT.
- Vector VN1640 CAN case (only for DUT simulation).

PROJECT ELEMENTS

