**Abstract**
Design and create a heavy duty vehicle electrical test bench that will house a full size 2.1-meter Kenworth semi-truck dash along with its electrical components and control units. Create a software program that will allow validation testing for the Electric over air (EOA) systems.

**Objective**
Design the test bench with the following features
- Modular
- Easily accessible components
- Mobile
- Robust program that will allow added functionality
- Interface between CAN communication and our program

**Hardware Design**
- Interface
- Sensor spoofing
- Communication tap-ins
- Re-due pinouts on control units & light fixtures

**Software Design**
- Simulate EOA switch functionality
- Display to LED array
- Parse through CAN communication signals

**Future Work**
- Expand code to test more features
- Update all wiring harnesses
- Test new versions of control software
- Update newer versions of hardware
- Include the engine harness and additional sensors

**Broader Impacts**
- Improve safety for motorists and drivers with accurate and reliable testing in heavy duty vehicles
- Support anyone from large scale manufacturers to small auto repair shops in the implementation of driver assist testing
- Reduction of resources need for production, allowing for a smaller carbon footprint and lower costs

**Glossary**
- CAN: Control Area Network
- EOA: Electric over Air

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