Automated Regression Test User Interface

From left to right: Ciaran Macken (ME), Joe Hibbard (ME), Lance Munsterteiger (CpE), Daniel Walczak (EE)

PROJECT SUMMARY:

KEB America has requested an automated fixture to function test the VFD controller interface for their new F6 product line. The value this has to KEB is that Testing can now be performed with reduced personnel resources in R&D to balance productivity. Additionally, new firmware updates can be readily tested with software presets on the machine, streamlining the process in R&D. The solution consists of an eight linear actuator array to press the buttons. A program is used to prepare test parameters, and a Raspberry Pi camera capture system works in tandem with the program to provide results from the remote's screen after each of the button presses. This system can be interfaced with via network connection over ethernet, with the corresponding results from the camera capture system being stored in a database for the end user to identify where the VFD passed or failed each test.

DESIGN GOAL:

The goal of the project is to create an automatic tester that runs through a user-created testing sequence. A sequence of buttons and related screens will be specified such that the automated system will press each button and verify that the controller is functioning correctly. Using computer vision, a comparison of the resulting remote screen with the expected screen will send a pass or fail result to an accessible database.

Figure 1: Actuator pressing button on controller

TEAM 8

INDUSTRY REPRESENTATIVE

Andrew Sanchez, Michael Belsky

FACULTY ADVISOR

Ray Haremza

DESIGN CONSTRAINTS:

- **Power** All mechanical actuation devices must be electrically powered by 8VDC
- **Communication** The test system must be able to be accessible via ethernet and control the actuators and camera components
- **Actuators** The max pressing force of actuators must be less than 1.5 lbs. The max stroke length must remain under 10mm
- **Access** The design must allow easy access to the controller and housing.
- **Camera** The camera must capture pictures of the controller screen and evaluate proper functionality of VFD controller.
- **Results** The results from each picture analyzed must be stored in a database for the end user.

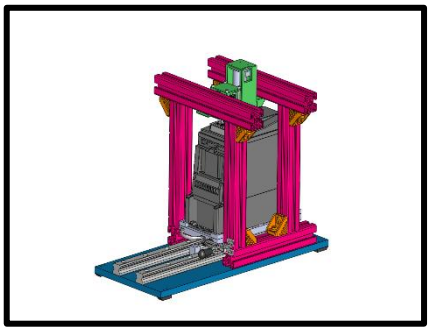

Figure 2: 3D model of design