Glass Actuator Memory Tester
Team 11

Background

Glass actuator testing is essential for validating the memory function of exterior mirrors. These tests ensure that a mirror can return to designated memory positions based on voltage settings. Reliable memory recall improves driver safety and comfort by maintaining proper mirror alignment.

Purpose & Objective

This project focuses on improving the accuracy and efficiency of existing glass actuator test methods. By developing an automated solution that reduces the need for manual input, this project aims to deliver more consistent results that outperform the current manual processes.

Notable Challenges

- Tracking a laser dot, using a GoPro, to determine the angle difference of a mirror with an accuracy of 0.05 degrees.
- Creating a user friendly system to manually and automatically control glass actuators.
- Interfacing PID control with a rotational matrix to account for nonlinear behavior.

Design Approach

This apparatus utilizes a Raspberry Pi to actuate a mirror and a GoPro to capture the location of a laser that indicates the position of the glass. It is compatible with Magna's standard mirrors and allows for toggling between OEM specifications. The automated system eliminates operator inputs after initial setup, increasing efficiency and improving accuracy.
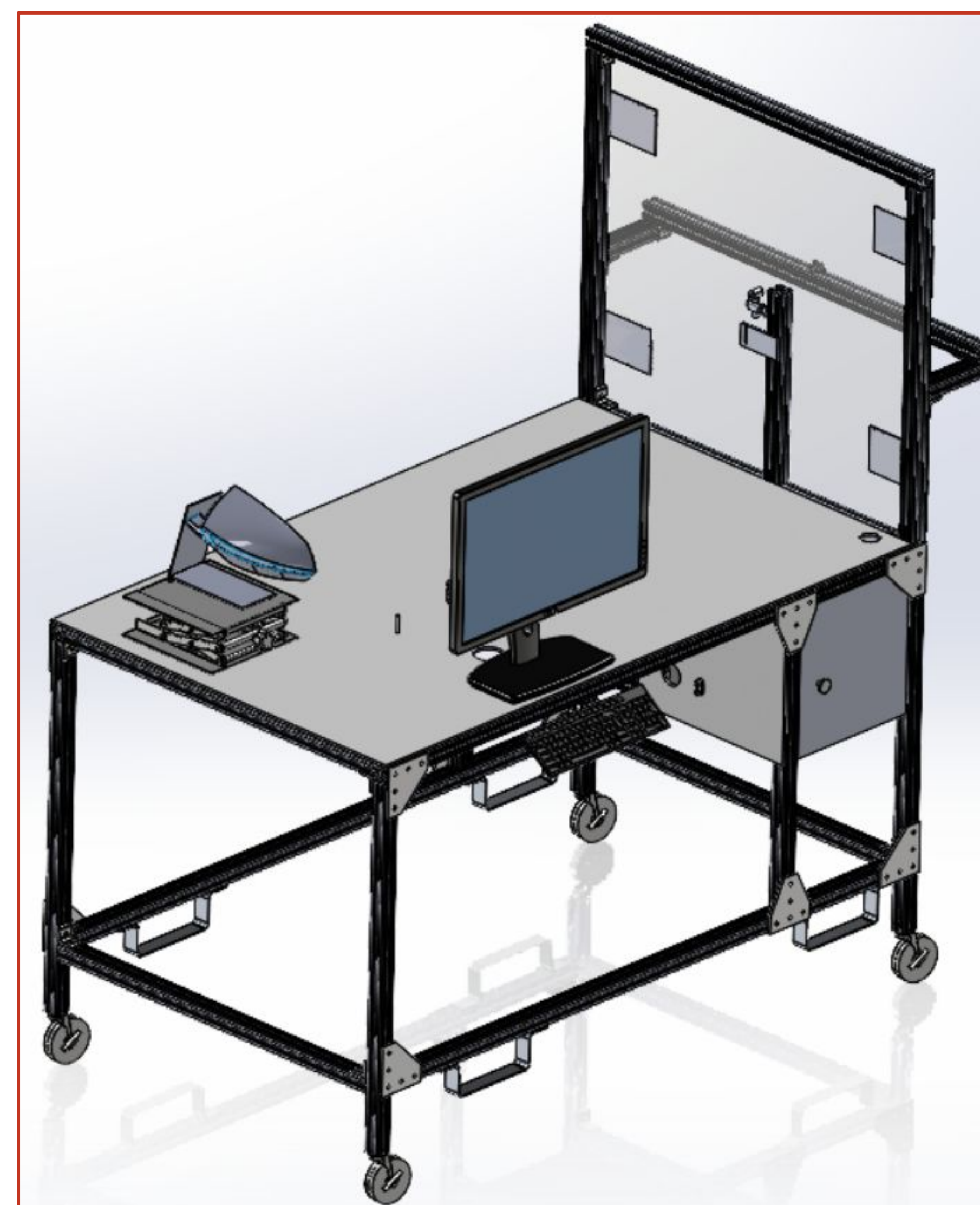
Testing Outcomes

This apparatus is compact and mobile, overcoming the physical limitations of the previous test method. This design allows for accurate measurements within a glass angle of 0.05 degrees, while significantly reducing the testing cycle time compared to the previous version.

Meet the Team

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