Build 1 Final Report

The goal of Build 1 was to develop a basic access control system using an Arduino Uno, and other components such as an OLED display, pushbuttons and LEDs. The system was designed to simulate a health-based entry check, where access is only granted if a health check is passed before attempting to enter.

During implementation, the OLED was programmed to display messages corresponding to the system's state. Pressing the Health Check button displayed *"Health check passed."* on the OLED. If the Entry button was pressed without a prior health check, the Red LED turned on and the display showed *"Health check failed. Access denied."*, and the number of people did not change. However, when the Health Check was pressed before Entry, pressing Entry resulted in the Green LED turning on, the display showing *"Access granted."*, and the number of people incrementing by one to reflect a successful entry.

The Exit button resulted in a decrement in the number of people to reflect a person leaving the room. Pressing Exit caused the count to decrease and update on the OLED without triggering any LED or message display, as expected.

All buttons and indicators were tested thoroughly to confirm that the behavior matched the intended logic. The system consistently blocked entry without a valid health check and correctly allowed access otherwise. The OLED provided real-time feedback, and the LEDs clearly indicated success or failure.

Link to the Demonstration Video:

https://drive.google.com/file/d/1Jcxv45lQSgz_GDCXSvhT3bAtdfUL3wXc/view?usp=sharing