Requirement and Verification Tables

Requirement	Verification	Verification Status
Acceleration Module 1. Be able to detect multiple people accurately. 2. Have a classification accuracy of >80%. 3. Recognize mask/no mask in under 30s.	Acceleration Module 1. Test this manually with various people 2. We will test this on a held out data set consisting of 10% of the total data we trained on. 3. Modify the code to time each prediction of our acceleration module	1. Y 2. Y 3. Y
Camera 1. Must have sufficient resolution and angle to detect persons approaching the door.	Camera 1. Manually check this on a laptop to see if persons with can be made out with the camera	1. Y
Lock 1. Must be able to be switched on and off by a 1 bit 3.3 Volt Signal	Lock 1. Verify using an oscilloscope to see if it is locked and unlocked by a 3.3 Volt Signal	1. Y
Screen 1. Must have sufficient resolution to be viewed from 5 feet away	Screen 1. Run a test image on the screen, check the viewing angle at a radius of 5 feet from the display and measure the region for clear visibility for the user.	1. Y
120 V AC to 12 V DC Converter 1. Vout= 12+/-0.5 Volts at 2 A	120 V AC to 12 V DC 1. Attach a 6 Ohm resistance to the output. Attach Oscilloscope to the load. Measure output voltage and current.	1. Y
12 V to 5 V DC/DC Converter 1. Vout=5+/-0.5 Volts at	12 V to 5 V DC/DC Converter 1. Attach an oscilloscope	1. Y

600 mA	and draw above 600mA incoming current to the camera and control subsystems and ensure the output voltage based on test pins is within 4.5V and 5.5V.	
Microcontroller 1. Need to be able to take a 2-bit signal using the SPI interface from the acceleration module and send data to the microcontroller.	Microcontroller 1. Connect a debugging circuit with 2 LEDs on a breadboard corresponding to the range of values that can be represented by the 2-bit values and check output states.	1. N
Video Controller 1. The display's MIPI DSI interface is compatible with the HDMI interface of the Coral Dev Board. 2. Be able to receive video or GIF and transfer data to display	Video Controller 1. Connect the Coral Dev Board Mini to a breakout board which then connects to the 50-pin 4-lane MIPI DSI display 2.4.2 Screen A display that will take in input from the video controller and play the GIF. 2.5 Controller Subsystem/Microcontroller This is the subsystem that will coordinate the other subsystems taking in state signals from the camera subsystem through SPI and controlling the state of the lock solenoid in the lock subsystem through GPIO. 11 and ensures that data flow from host and data received by slave traffic is the same. 2. Store video data in flash memory and	1. N 2. N

	check if data shows up on display.	