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Covid-19 Safety Door
Thermawave Monitor

Problem :

       During the COVID-19 epidemic it has become clear that to limit the spread of the virus, it is pertinent to keep track of who has it and who doesn't. For buildings and businesses, one way to limit the spread of the virus is to limit who has entry to the premises. Doorways and entrances are the only access point for these enclosed spaces, yet they do not have automated security measures that assure that all that entered the enclosed space are for sure COVID free.

Solution Overview :

       To assure that there are no COVID-19 traces inside the store, the device will consist of a mechanical arm and a temperature sensor. It is important to ensure that only safe individuals have access to these buildings. To do this our solution is adding a temperature sensor to the frame of the door so all that approach the door are checked for a normal body temperature. This assures that individuals that have a fever, a common symptom of COVID-19, are not allowed into the building. A mechanical arm will not allow them into the building if they do not have a healthy body temperature.

Solution Components :

       [Subsystem #1 : Covid Detection] :

       In order to detect when a person has a fever, we will be using an IR thermometer sensor to measure the IR temperature of people in front of it. This will hook into an arduino.

       [Subsystem #2 : Door Attachment] :

       This will be an attachment to a door frame. This will be a mechanic arm connected to a servo motor that acts as a tollbooth. If the person does not have a fever, the arm will be lifted and they will be admitted into the store. If the person does have a fever, the arm will stay down and the person will not be allowed into the store.

       [Subsystem #3 : Linking System] :

       This is the subsystem that will link the COVID detection with the door automation. This is extremely important in order to ensure that the door will not open if the person has a fever.

Criteria for Success :

At a high level our project has three major components each with their own metrics for success. For the Covid Detection system we need a system that can accurately detect an individual who has a raised body temperature. Although this is not a sure sign of Covid-19, this will successfully replace a system many organizations already use. Our Second criteria for success is a door attachment that accurately keeps those with a fever out. The final metric of success is having these main two systems communicating flawlessly, the automated arm and covid sensor should be able to interact seamlessly with each other.