Team 13
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Executive Summary:

- The Human Capacity Controller is a device that counts the number of people in a room and sets a limit in order to prevent an overcrowded environment. It provides an alert in the form of sound/light when the advised count is exceeded as a reflex and hence acts as a mechanism to stop overflowing of venues by additionally locking the premises by an activated lock system.

Brief Market Analysis:

- It could be used in schools or offices.
- It can be used after the pandemic to manage the capacity of people in closed places.
- We intend to market this product to any individual, business or organization that is interested in monitoring, evaluating and maximizing their space seating capacity to adequately maintain safety, good health practices and control during crisis or events
- Our competitors are going to be somebody with a similar product but more convenient, portable and easy to use. We think we can sell this product for about $100. Our product is going to be a simple operational device that anybody can use without hindrance. The cost of this product is also going to be less expensive due to the cost of labor and component use to produce this product.

Requirements:

- Easy setup, considerable battery life
- Must perform accordingly such as counting each individual and recording the number as it increases
- Must be prompt in displaying an alert/giving alert when limit exceeds
- Must be able to activate lock after limit is reached
- Clear LED display
- Must be able to successfully detect the entry of each individual into the premises to display and record accurate information
- 3D printed model

Design Specification:

- Microcontroller: Arduino UNO
- Sensor / input: Ultrasonic sensor, Keypad
- Output: LCD display
- Actuator: Servo motor
- Power: 5V or more battery

System Architecture: