Group Member Names: Cooper Ayers, Grace Jenkins Welsh, and Garret Wagner

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**People Counter**

**Problem Statement:**

It can be useful to know how many people are in a room when one cannot watch a door constantly. For example, in a daycare, a teacher MUST know how many people are in a room but obviously has a lot to pay attention to. Perhaps one must know how many people remain in an area, so they may ensure there is no one left in that room: For example, how many are left in an office at the end of the day? We will record and display a dynamic, accurate count of the people in a room at any given time by adding and subtracting as people enter and leave a room.

**Hardware Setup:**

Bill of Materials:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Part Name** | **Purpose** | **Item Name** | **URL** | **Price** |
| RedBoard | Logic Board | SparkFun RedBoard Qwiic DEV-15123 | <https://www.sparkfun.com/products/15123> | $19.95 |
| Vernier Interface Shield | Interfaces with Vernier Photogates | SparkFun Vernier Interface Shield DEV-12858 | <https://www.sparkfun.com/products/12858> | $24.95 |
| 2 Photogates | Relays information to be recorded | Vernier Photogate | <https://www.vernier.com/product/photogate/> | $49.00 |
| 2 Laser Pointers | Used with photogate | Vernier Laser Pointer | <https://www.vernier.com/product/laser-pointer/> | $19.00 |
| Breadboard | Connects LCD screen | Breadboard PRT-12002 | <https://www.sparkfun.com/products/12002> | $4.95 |
| LCD Screen | Display | Basic 16x2 Character LCD LCD-00709 | <https://www.sparkfun.com/products/709> | $18.95 |
| Boxes | Holds Photogates and Laser Pointers | Built by Cooper Ayers | NA |  |
| Cables and Chords |  |  |  |  |
| Other? |  |  |  |  |

Hardware Schematic:

This will be the fritzing I am working on

Hookup Guide:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Part** | **Pin** | **Connector** | **Pin** | **Part** |
| RedBoard |  | Micro USB |  | Laptop |
| Vernier Interface Shield |  |  |  | RedBoard |
| Photogate 1 | 2 |  |  | Vernier Interface Shield |
| Photogate 2 | 6 |  |  | Vernier Interface Shield |

Images:

Photos here

**Code:**

Python Code:

Arduino Code:

**Results:**

We will post pictures and possibly a description in this section

**Future Work:**

Improvements can be made to this project by keeping the number accurate when there are multiple entrances and exits and there are multiple sensors to keep track of. Being able to display this number to an application or multiple devices would be helpful to make this process more useful to groups of people rather than people directly in the room.

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