HOCHSCHULE
RAVENSBURG-WEINGARTEN
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Circuit Design

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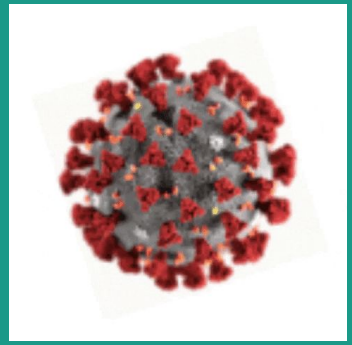
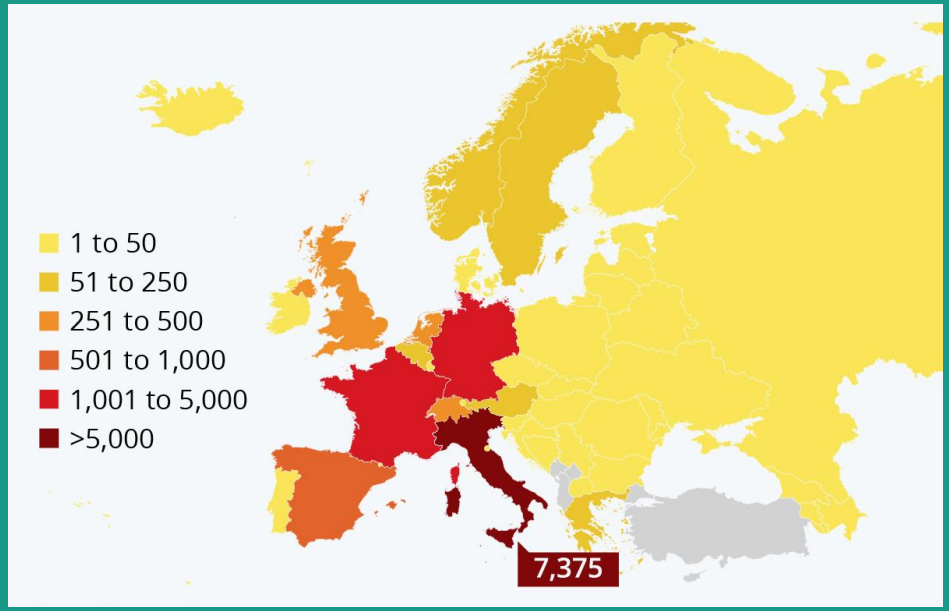
Outline

The Problem





Corona Restrictions

- Life during corona
- Social distancing
- The necessity to limit the number of people in a room.

Our solution

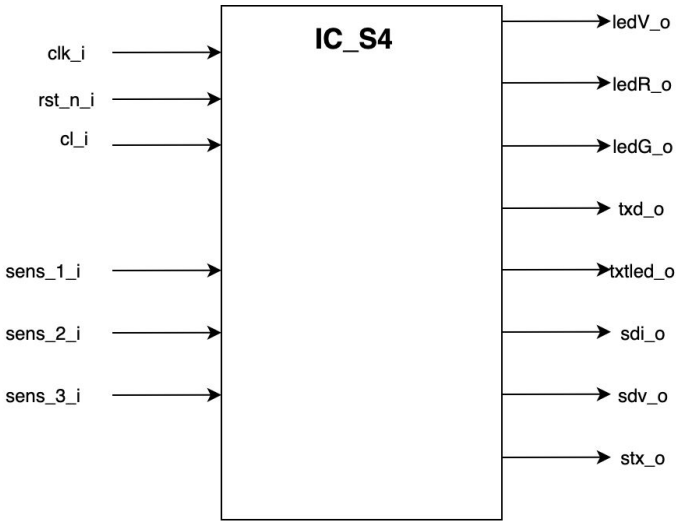
Characteristics and key features

- Max 1000 board build with intel Max 10 FPGA
- Light curtain sensors to find the direction of person
- Maximum capacity can be changed
- Information and values transferred to computer via RS232 interface
- A clear button to reset the count
- LED's to control the flow of people

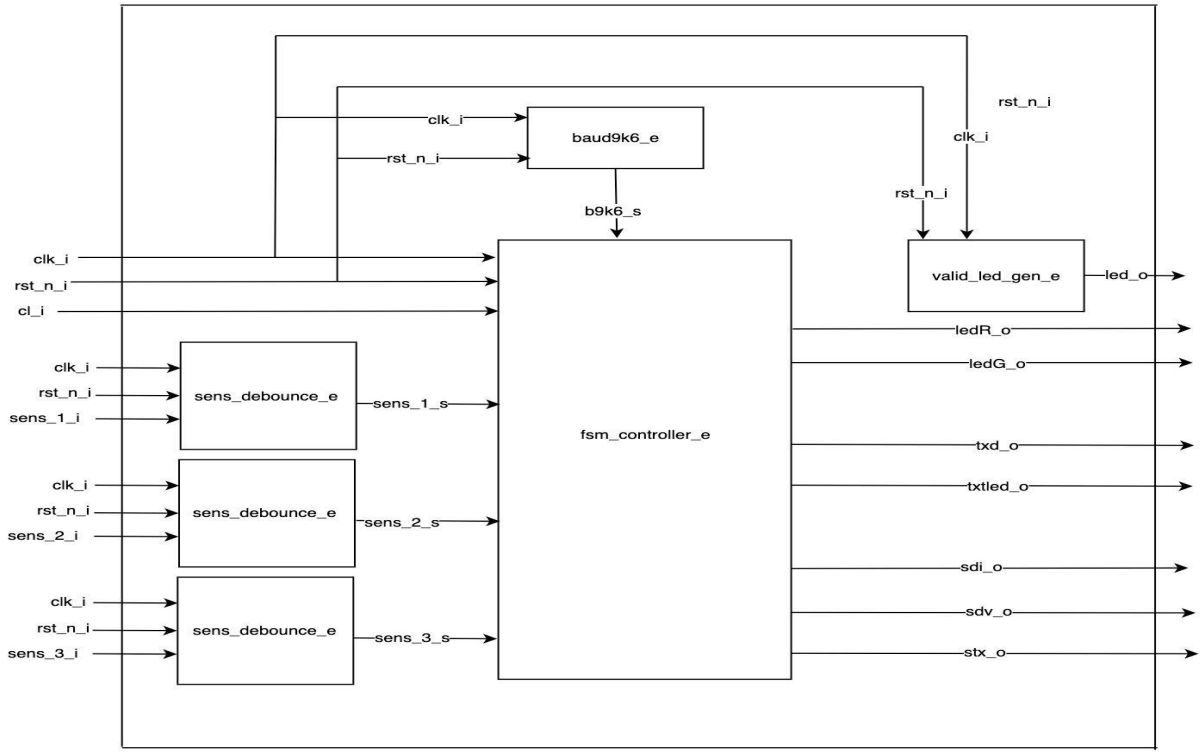
Assumption

- Only one door for entrance and exit
- Only one person at a time

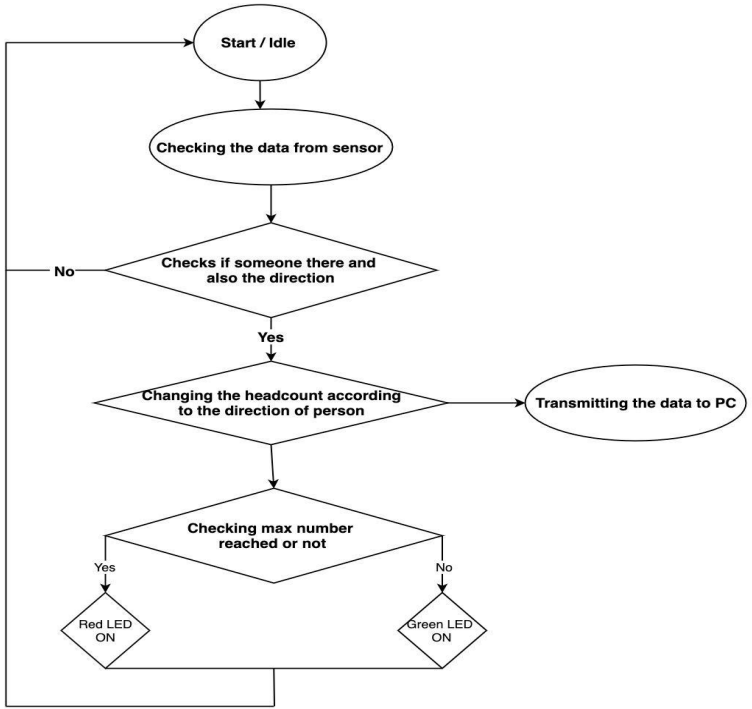
Top level View



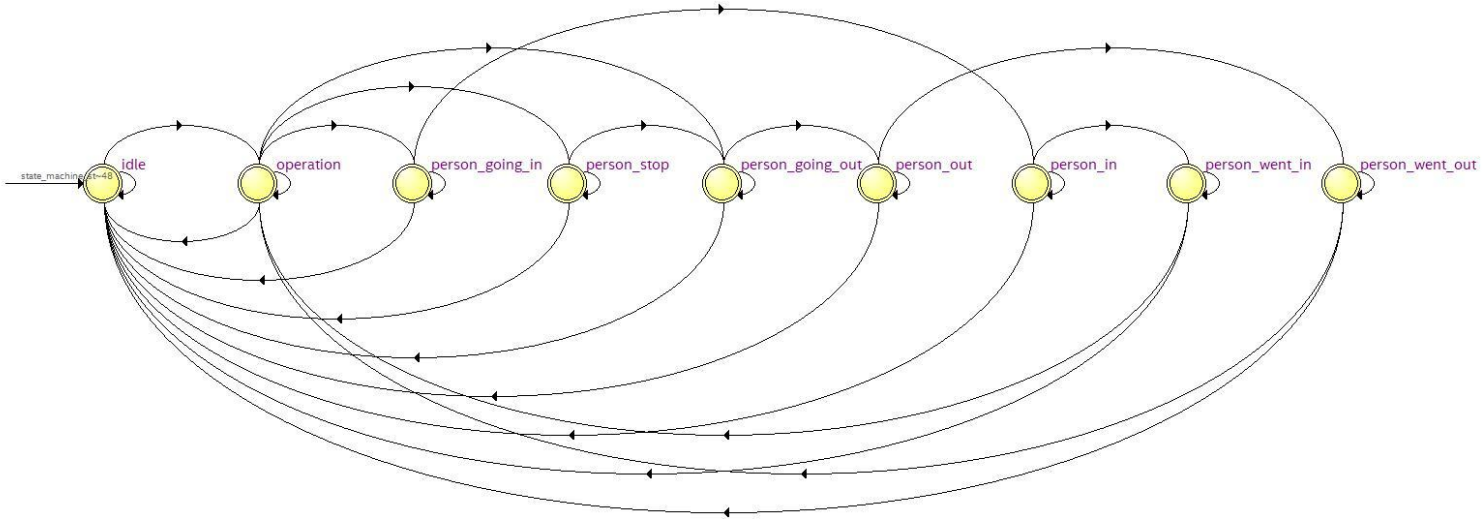
Top level Block Diagram



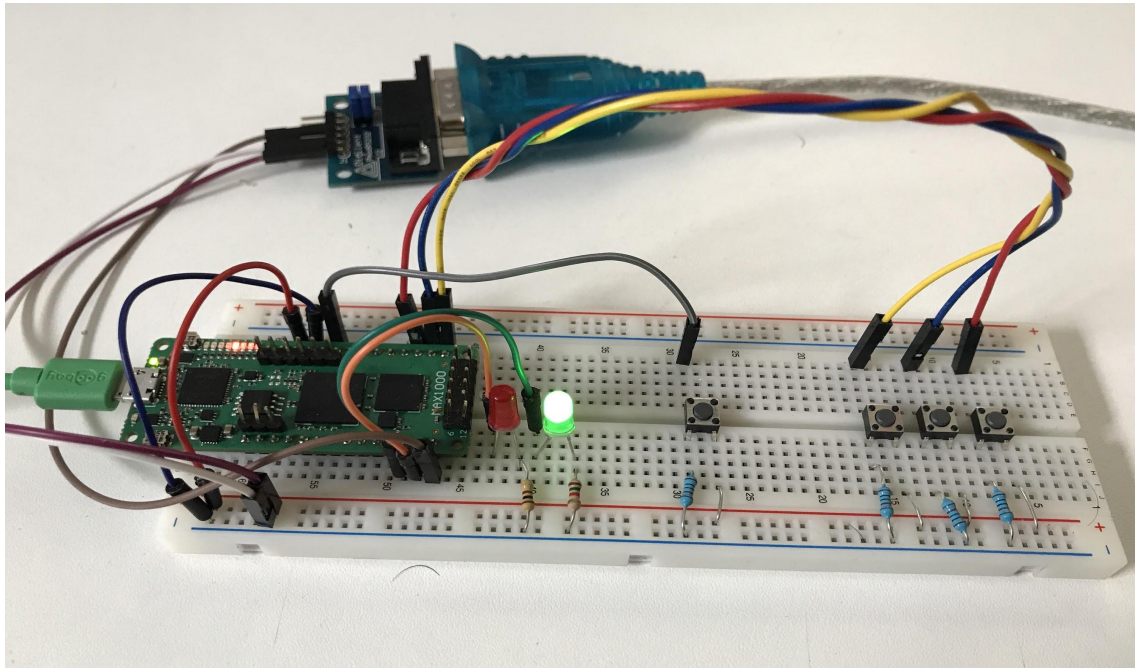
Flow Chart

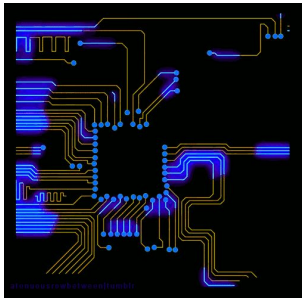

Start / Idle
Checking the data from sensor
Checks if someone there and also the direction
No
Yes
Changing the headcount according to the direction of person
Transmitting the data to PC
Checking max number reached or not
Yes
No
Red LED ON
Green LED ON

States of the FSM



Breadboard setup





Applications

Real life applications of this project

This idea can be implemented in lot of ways in real life

- Places where there is a limited seating capacity
- In public transports
- On conveyor belts to count objects

THIS DEVICE HAS A LARGE SCOPE AND CAN BE MODIFIED AND USED IN DIFFERENT AREAS

References

- https://www.statista.com/chart/20964/covid-19-cases-europe-map/
- Corona-Regeln in SH: Das ist erlaubt, das ist verboten | NDR.de - Nachrichten - Schleswig-Holstein
- https://campus-stories.htw-berlin.de/jahr/2020/tipps-gegen-corona-angst/
- https://www.shutterstock.com/search/fpga

We have uploaded all our files in to a github repository reference :
https://github.com/AnandKishore21/vhdl_sem4

THANK YOU