AUDITORIUM CAPACITY ALARM USING RASPBERRY PI & IR SENSOR

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INRODUCTION

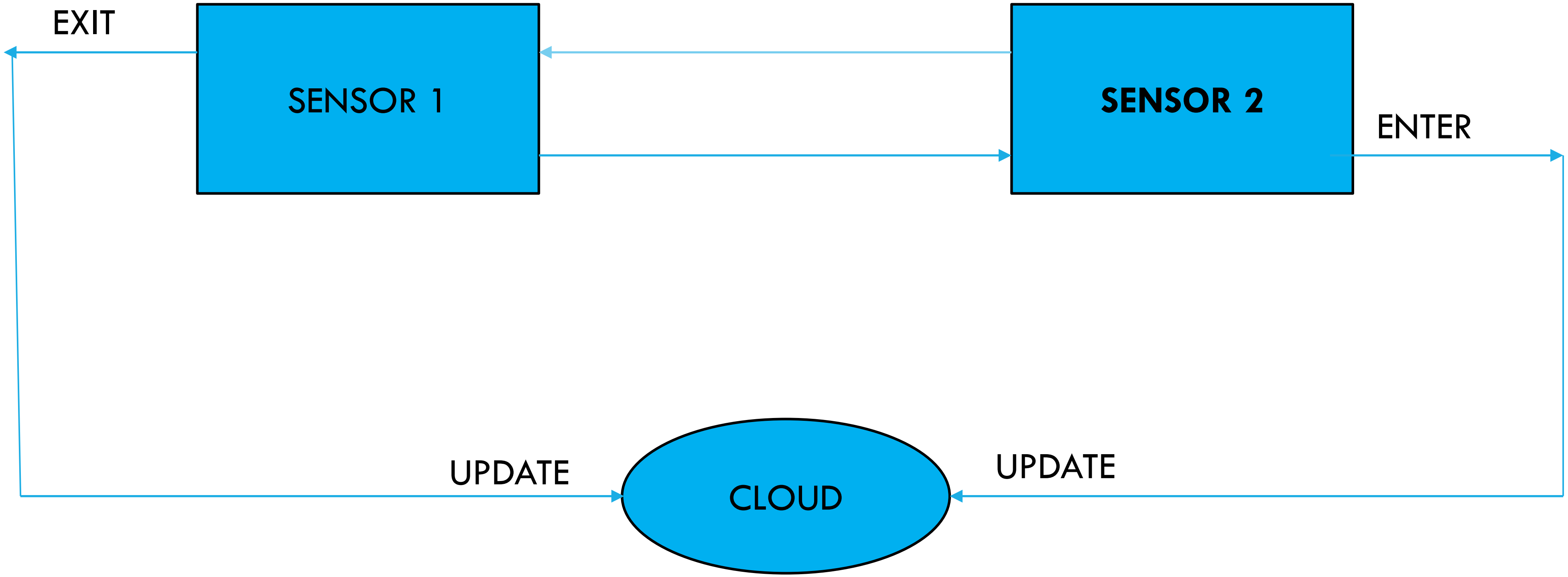
In this project we are proposing a model to solve the problem of Auditorium Capacity Calculation. We often face problems in calculating number of persons in an Auditorium for big or sometimes small events. By monitoring the persons entering or coming out of the room we come up with a solution in which with the help of IR Sensors we are calculating the exact number of person present in the auditorium in real time. Here, we have used Raspberry pi and two IR Sensors. A model is deployed and the data from sensor is taken and read in Raspberry PI and then publishing the data on cloud. We can also perform different features provided on the platform to analyse data. The platform we are going to use is ThingSpeak.

LOGIC DESIGN

We have used Raspberry PI and two IR Sensors. Sensor 1 is placed at the entrance point and sensor 2 is placed at the exit point. When any persons enters the room, sensor 1 will blink first then sensor 2. And if any person is coming out of the room, sensor 2 will blink first then sensor 1. In this way ,we will get to know the auditorium capacity by the reading the data from the sensors in real time.

We have assumed that at any instant one person is either entering to or coming out of the auditorium.

SCHEMATIC DIAGRAM



IMPLEMENTATION

```
import RPi.GPIO as g
import time
import urllib.request
import requests
g.setmode(g.BCM)
sensor1=17
sensor2=27
g.setup(sensor1,g.IN)
g.setup(sensor2,g.IN)
url='https://api.thingspeak.com/update?api_key='
key='O4C891AWW0FD9Y4U’
count=0 #Count Of Person
while True :
    s1=g.input(17)
    s2=g.input(27)
    if s1==1 and s2 == 1:
        time.sleep(0.5)
        continue
```

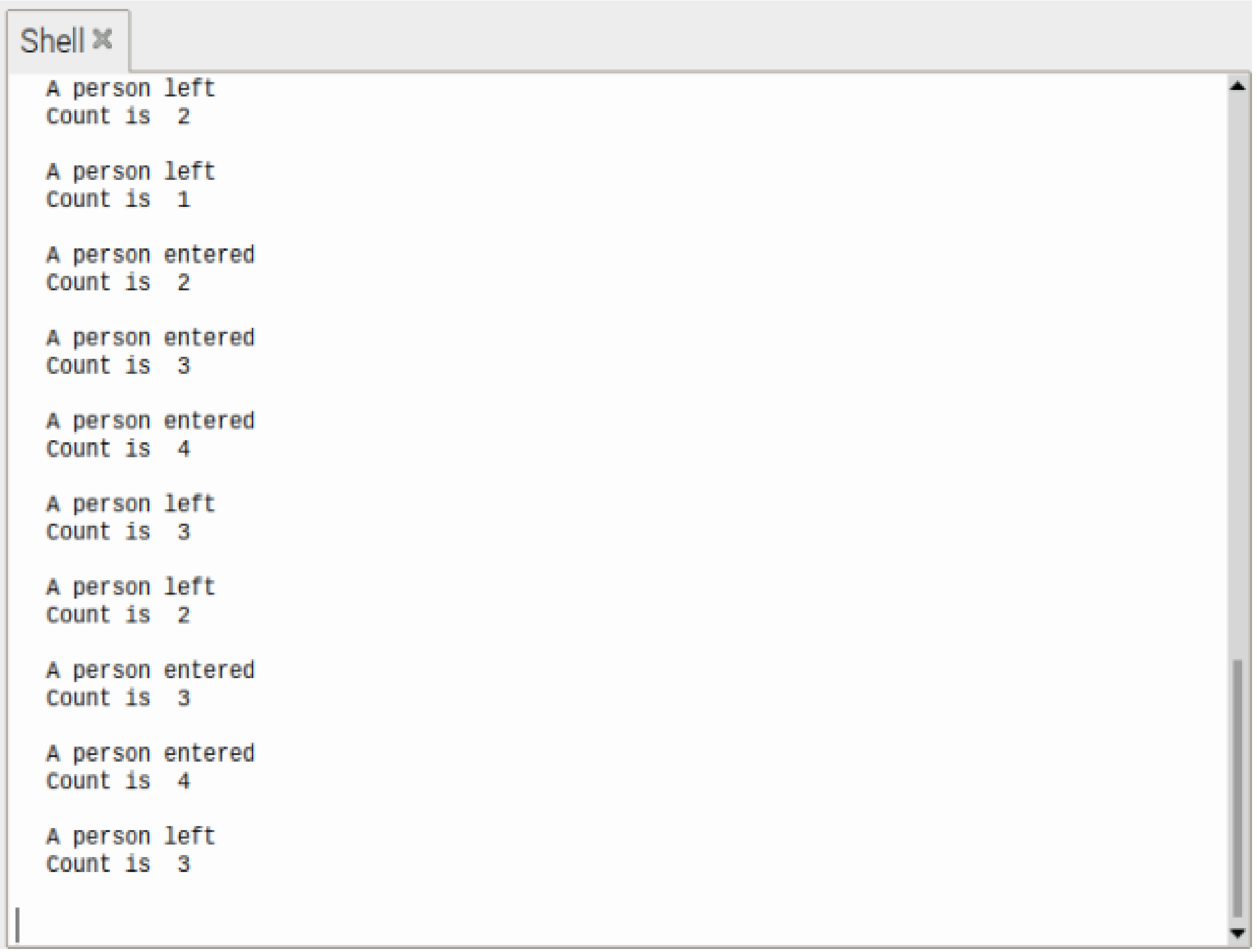
IMPLEMENTATION

```
if(s1==1):
    time.sleep(0.75)
    s1=g.input(17)
    s2=g.input(27)
    if  s2 == 1:
      count+=1
      print('A person entered')
      print('Count is ', count,'\n')
      header='&field1={}'.format(count)
      new_url= url + key + header
      v= urllib.request.urlopen(new_url)
      time.sleep(1.5)
  elif  s2 == 1:
    time.sleep(0.75)
    s1=g.input(17)
    s2=g.input(27)
```

IMPLEMENTATION

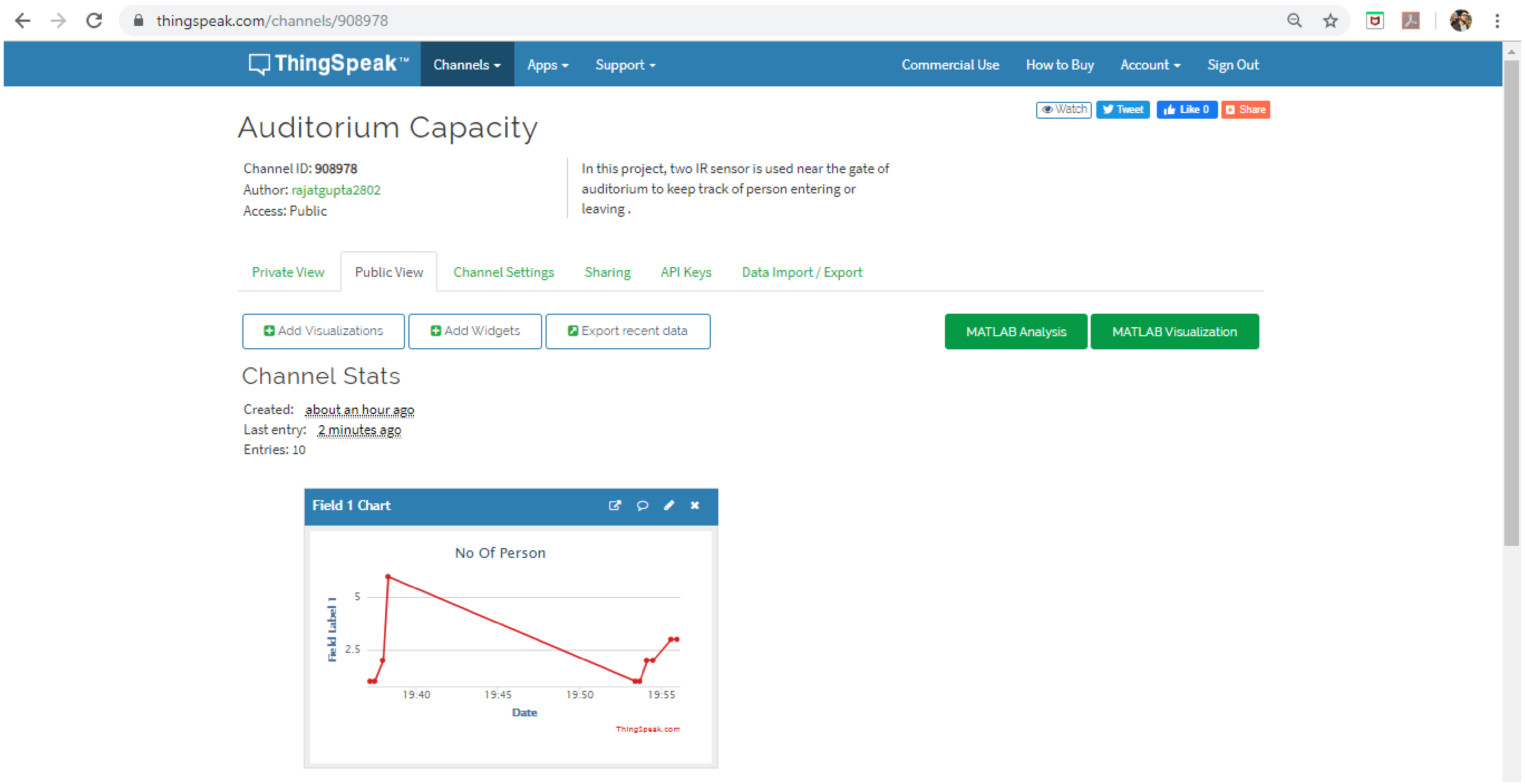
```
if s1==1:
        if count>0:
            count-=1
            print('A person left')
            print('Count is ', count,'\n')
            header='&field1={}'.format(count)
            new_url= url + key + header
            v= urllib.request.urlopen(new_url)
            time.sleep(1.5)
```

RESULTS



```
A person left
Count is  2

A person left
Count is  1

A person entered
Count is  2

A person entered
Count is  3

A person entered
Count is  4

A person left
Count is  3

A person left
Count is  2

A person entered
Count is  3

A person entered
Count is  4

A person left
Count is  3
```

CLOUD RESULT



Auditorium Capacity

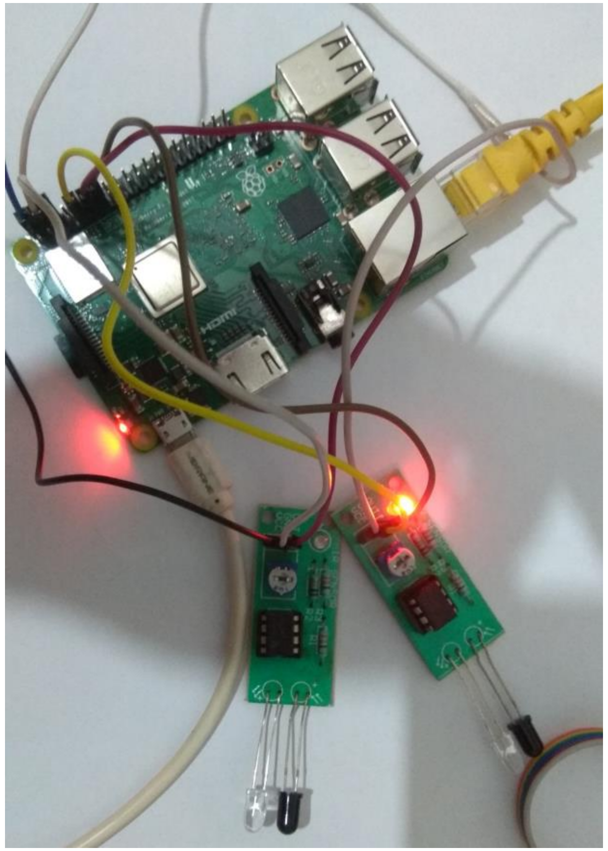
Channel ID: **908978**
Author: rajatgupta2802
Access: Public

In this project, two IR sensor is used near the gate of auditorium to keep track of person entering or leaving .

Channel Stats

Created: about an hour ago
Last entry: 2 minutes ago
Entries: 10

CIRCUIT DESIGN



CONCLUSION

In this project, auditorium capacity alarm is designed based on the assumption that at a instant only one person can either enter or leave the room. The proposed model is working fine and the results are meeting the requirements on given conditions.

FUTURE ASPECTS

With the given problem and the proposed model, the solution is satisfactory. To meet the realistic challenge the bounds of our assumption should be lessen and have a proper and strong logic.

Also, there should be a synchronous behaviour of the proposed model.

REFERENCES

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http://www.technofist.com/Raspberry_pi.html