Traffic Density Control System

IOT Project

Team:

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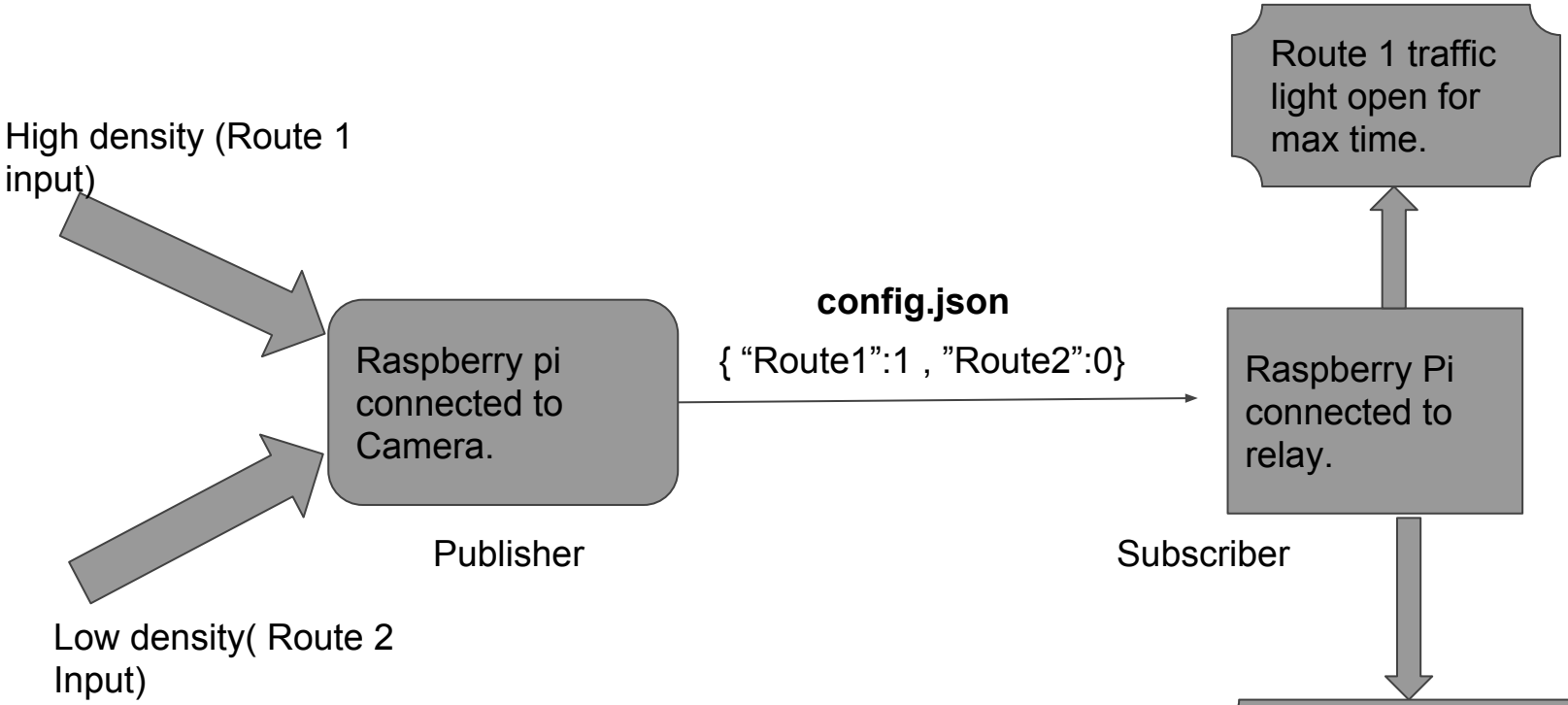
Overview

Traffic Density control system is Raspberry-Pi based system which smartly manages traffic density at the Junction.

Modules:

Main module in the system are

1. Camera: The camera will be located near the junction. It will be located on an angle so that it can capture maximum number of vehicles. The camera will send the captured video to the Raspberry Pi board.
2. Raspberry Pi: Raspberry Pi is small size computer which contains camera drivers.
3. Cloud server: all the images captured will be sent to cloud storage where they will be stored for future uses.
4. Relay to depict traffic lights.



Route 1: Light 0, Light 2 in relay

Route 2: Light 1, Light 3 in relay

Density	Config.json (values)
High	1
Low	0

init.json:
{ “Min” : 10 , “Max” : 25 }

Min Time: The minimum number of seconds a traffic light will be on.
Max Time: The maximum number of seconds a traffic light can be on.

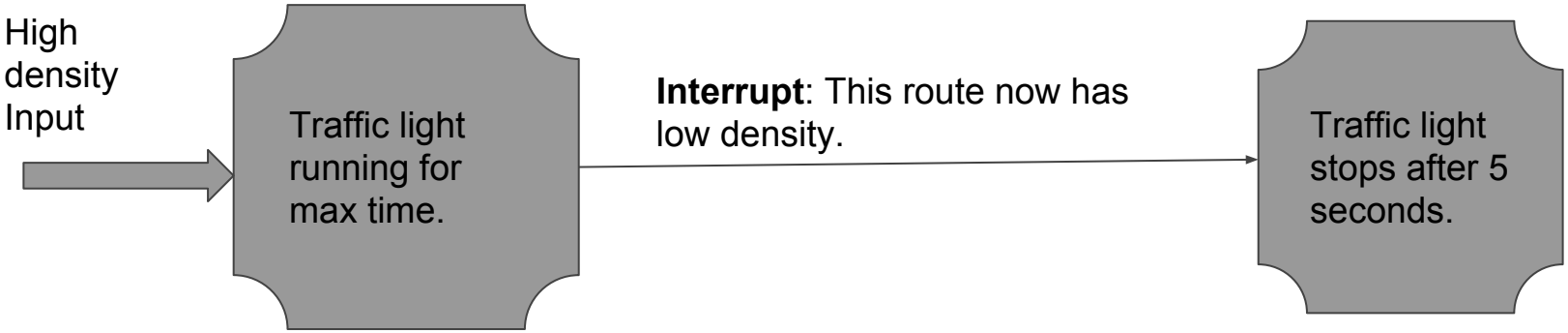
light.php: Admin has control over the min and max value through this web page which runs on nginx server.

Default:
Min = 10 sec
Max = 25 sec

Min time and Max time is controlled by a web page which controls init.json. Our python scripts takes the value of min time and max time from init.json.

Route 1	**Route 2**	**Light Connected to Route 1** (0,2 in relay)	**Light Connected to Route 2** (1,3 in relay)
High Density	High Density	Max time	Max Time
High Density	Low Density	Max time	Min Time
Low Density	High Density	Min Time	Max Time
Low Density	Low Density	Min Time	Min Time

In case of interrupt of low density, the traffic light will stop after 5 seconds.



Assumptions:

1. In a Junction there are four paths and 1 Route contains two opposite paths.
2. This is a prototype depicting traffic density control system. This prototype can be further enhanced for smart nation to make smart traffic systems.
3. Relay act as traffic lights at junction.

Future Use:

Images captured at each junction can be used in future to study the traffic behaviour at particular junction and further enhancement can be made to the system.

THANK YOU