DENSITY BASED TRAFFIC CONTROL SYSTEM

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ABSTRACT

- Traffic congestion becoming one of the critical issues with the increasing population and automobiles in cities.

- Traffic jams not only cause extra delay and stress for the drivers but also increase fuel consumption and air pollution.

- The need of optimizing traffic control to better accommodate this increasing demand arises.

- Our proposed system aims to utilize the digital image processing technique to make the traffic system smart.

INTRODUCTION

- Focuses on switching the traffic light based on the vehicle density.

- Uses the image processing technique to monitor the vehicles.

- Implementing separate traffic control systems for day and night.

- Helps to identify the intensity of vehicles

SOCIAL RELEVENCE

- Reduces the extra delay.

- Reduces fuel consumption.

- This system aims to focus of reduce traffic congestion based on the intensity of vehicles.

- Thereby reducing air pollution.

- Helps with effective and fastest transportation.

OBJECTIVES

- Intensity of traffic identification.

- Detection of vehicles based on size.

- Traffic control based on lights on the road.

EXPECTED RESULT

- Controlling the traffic lights based on the no of vehicles on a particular road.

- Automatic time shifting the control of traffic lights during day and night time.

- Change in the controlling time of lights in rainy time.

UNIQUENESS OF THE PROJECT

- Low-cost intervention.

- Doesn't need human support, Fully automated by the machine.

- Updation can be done easily on the requirement.

- Machine learning tool for the self-analysis process.

- Easily diagnosable procedure.

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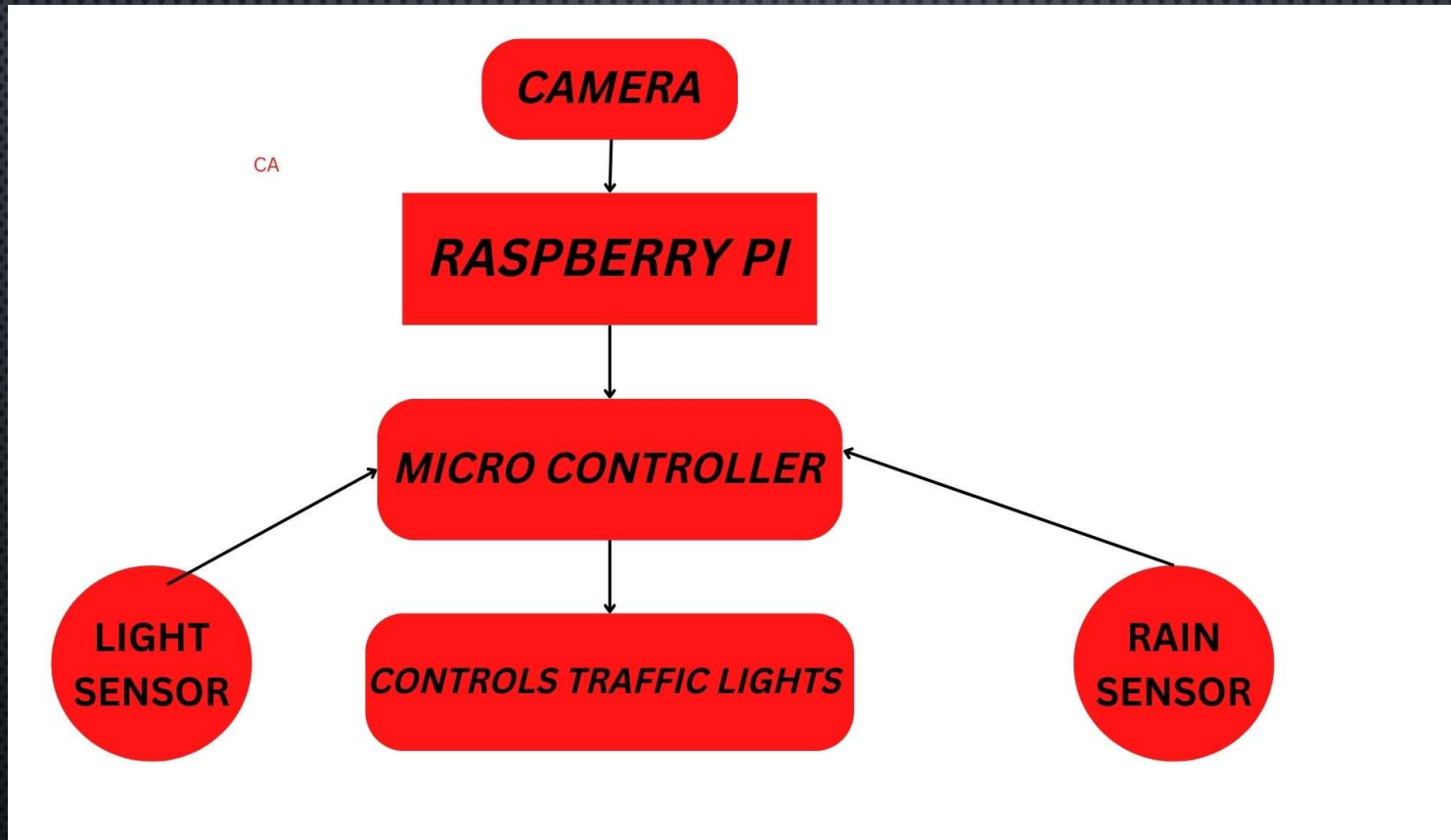- Easily diagnosable procedure.

PROPOSED TOOLS FOR THE PROJECT

SOFTWARE TOOLS

- PYTHON

- OPENCV

- KERAS

- TENSORFLOW

- ALTIUM

- ARDUINO IDE

HARDWARE COMPONENTS

- RASPBERRY PI

- LDR SENSOR

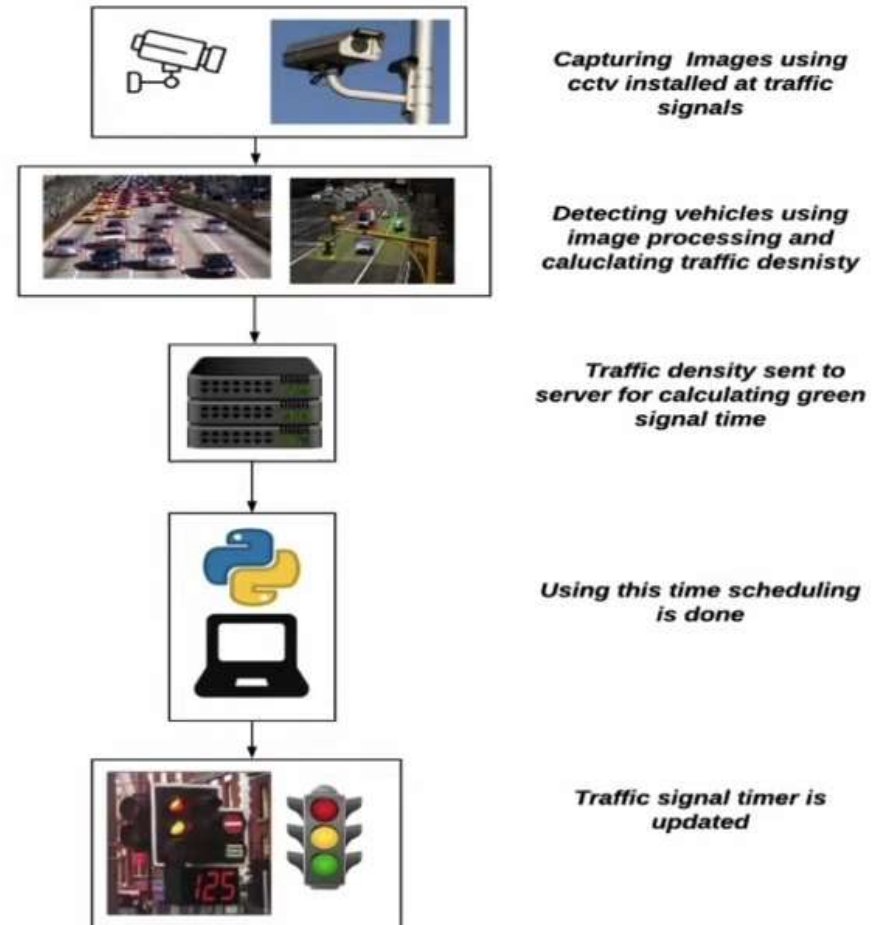- MICRO CONTROLLER (STM32F301)

- RAIN SENSOR

- CAMERA MODULE

BLOCK DIAGRAM

Flow Diagram

1. Image capturing using CCTV.

2. Vehicle Detection and Calculation of Traffic Density

3. Calculation of Green Signal Time

4. Scheduling Algorithm using parameters defined

5. Updating traffic signal times

SMART CONTROL OF TRAFFIC LIGHT SYSTEM

Capturing Images using cctv installed at traffic signals

Detecting vehicles using image processing and caluclating traffic desnisty

Traffic density sent to server for calculating green signal time

Using this time scheduling is done

Traffic signal timer is updated

REFERENCES

BASE PAPER

1.Smart Control of Traffic Light Using Artificial Intelligence(5 th IEEE International Conference on Recent Advances and Innovations in Engineering- ICRAIE 2020 (IEEE Record#51050))

LITERATURE SURVEY AND REFERENCES

Real Time Traffic Management Using Machine Learning(2020 International Conference on Emerging Trends in Information Technology and Engineering (ic-ETITE))