DENSITY BASED TRAFFIC CONTROL SYSTEM

Student investigators:

Ahammedunny Navas

Arjun R

Abhinand Dinesh

Ashil Siby

Class: S7LA

Project Guide :

Prof.Belma Joseph

Assistant Professor

ECE Department

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.
- Developing traffic control mechanism on rainy days

OBJECTIVES

- Traffic light controller based on computer vision.
- Identification of traffic intensity.
- Detection of vehicles based on size.
- Live video feed from the camera at the traffic junction for real-time traffic density calculation.

PROPOSED TOOLS FOR THE PROJECT

SOFTWARE TOOLS

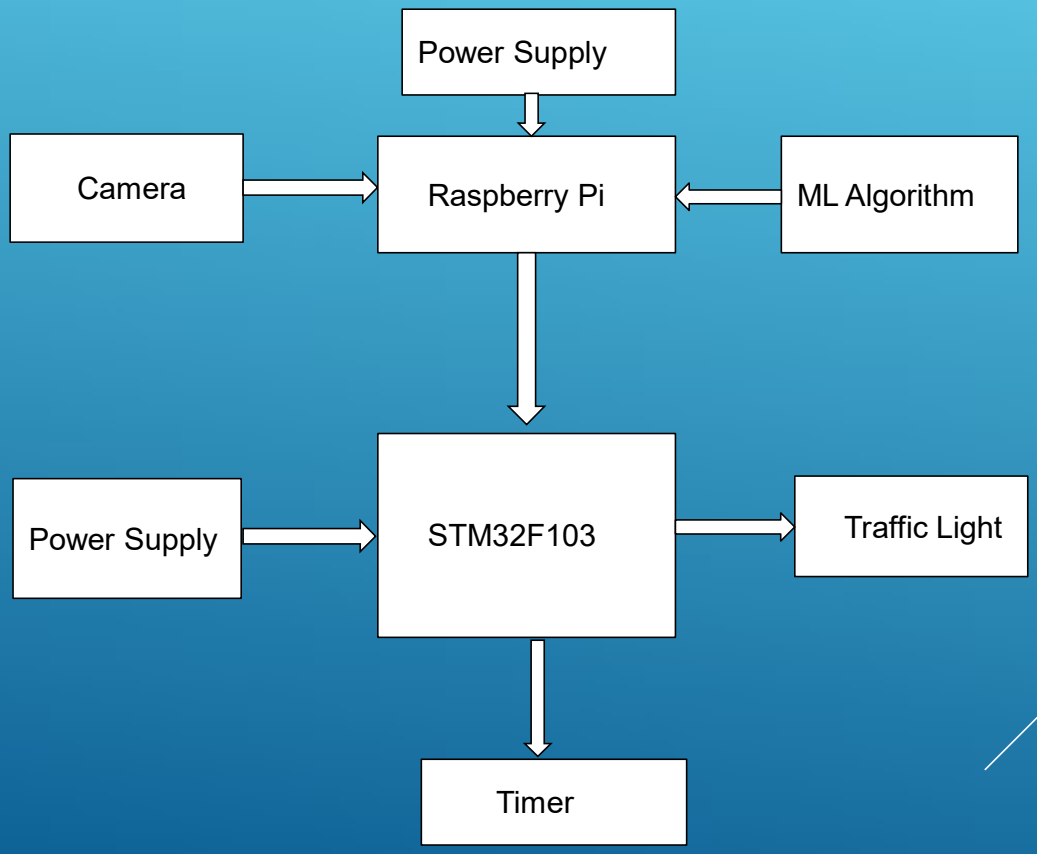
- PYTHON
- OPENCV
- KERAS
- TENSORFLOW
- ALTIUM
- ARDUINO IDE

PROPOSED TOOLS FOR THE PROJECT

HARDWARE COMPONENTS

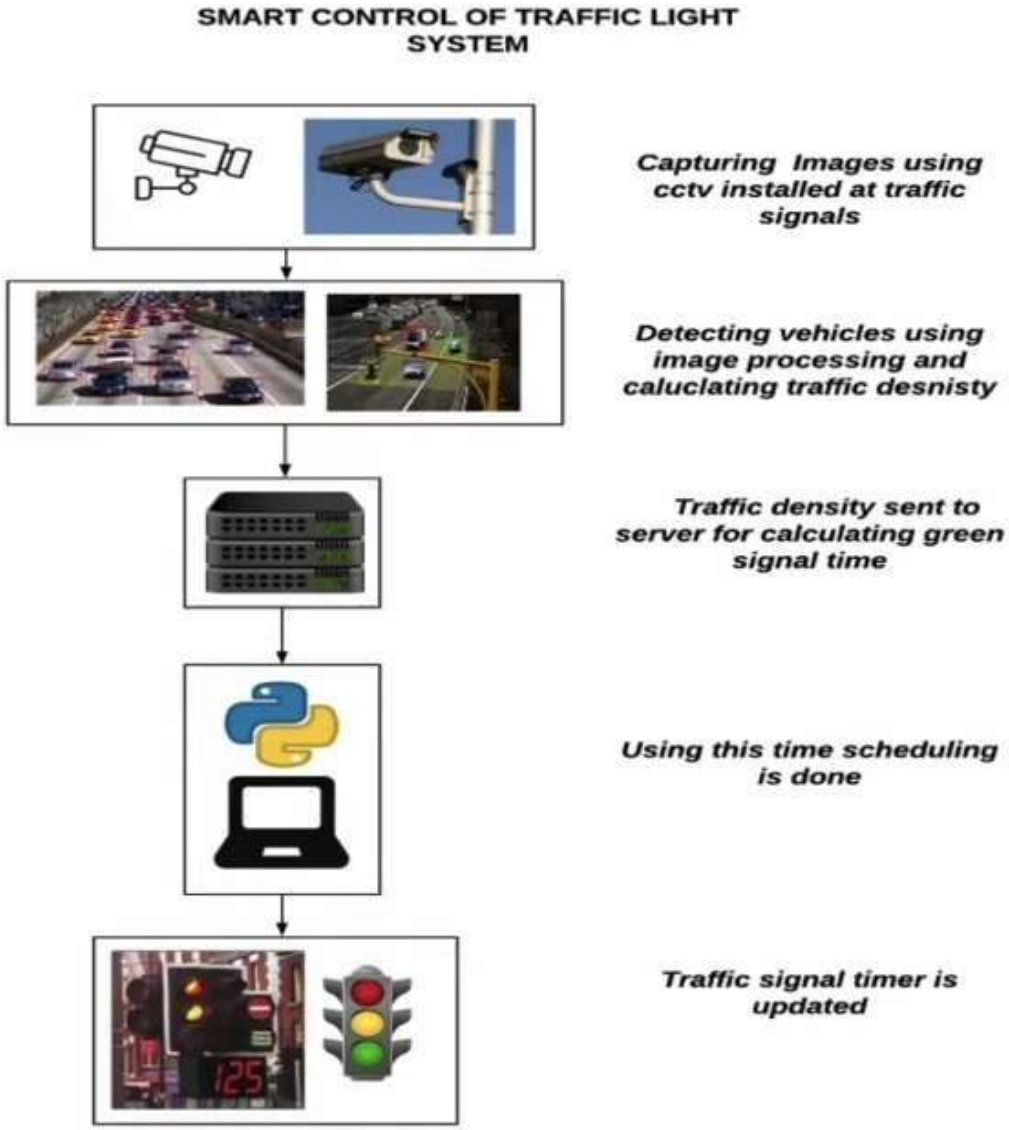
- RASPBERRY PI
- LDR SENSOR
- LCD DISPLAY
- MICRO CONTROLLER (STM32F301)
- RAIN SENSOR
- CAMERA MODULE

BLOCK DIAGRAM

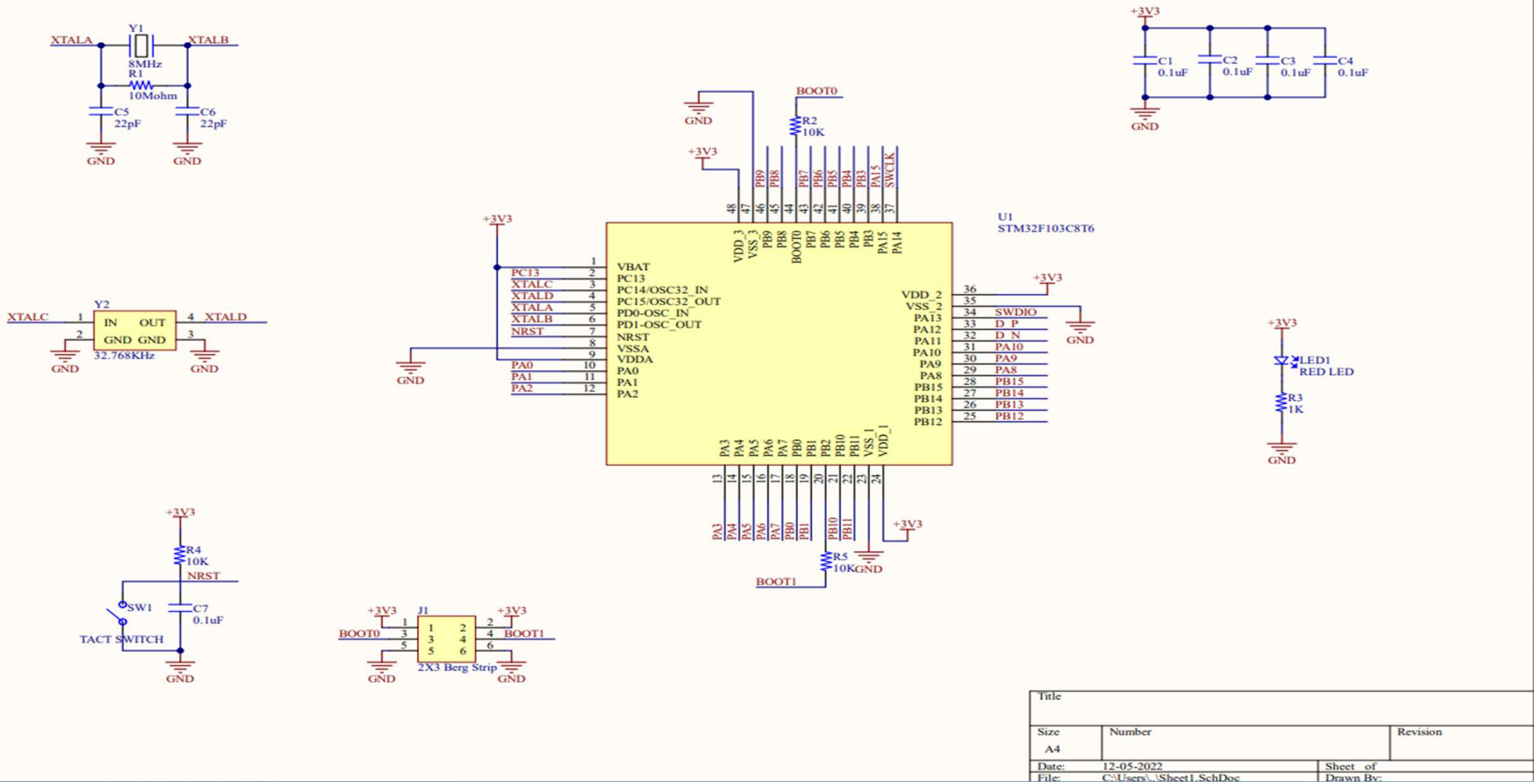


Flow Diagram

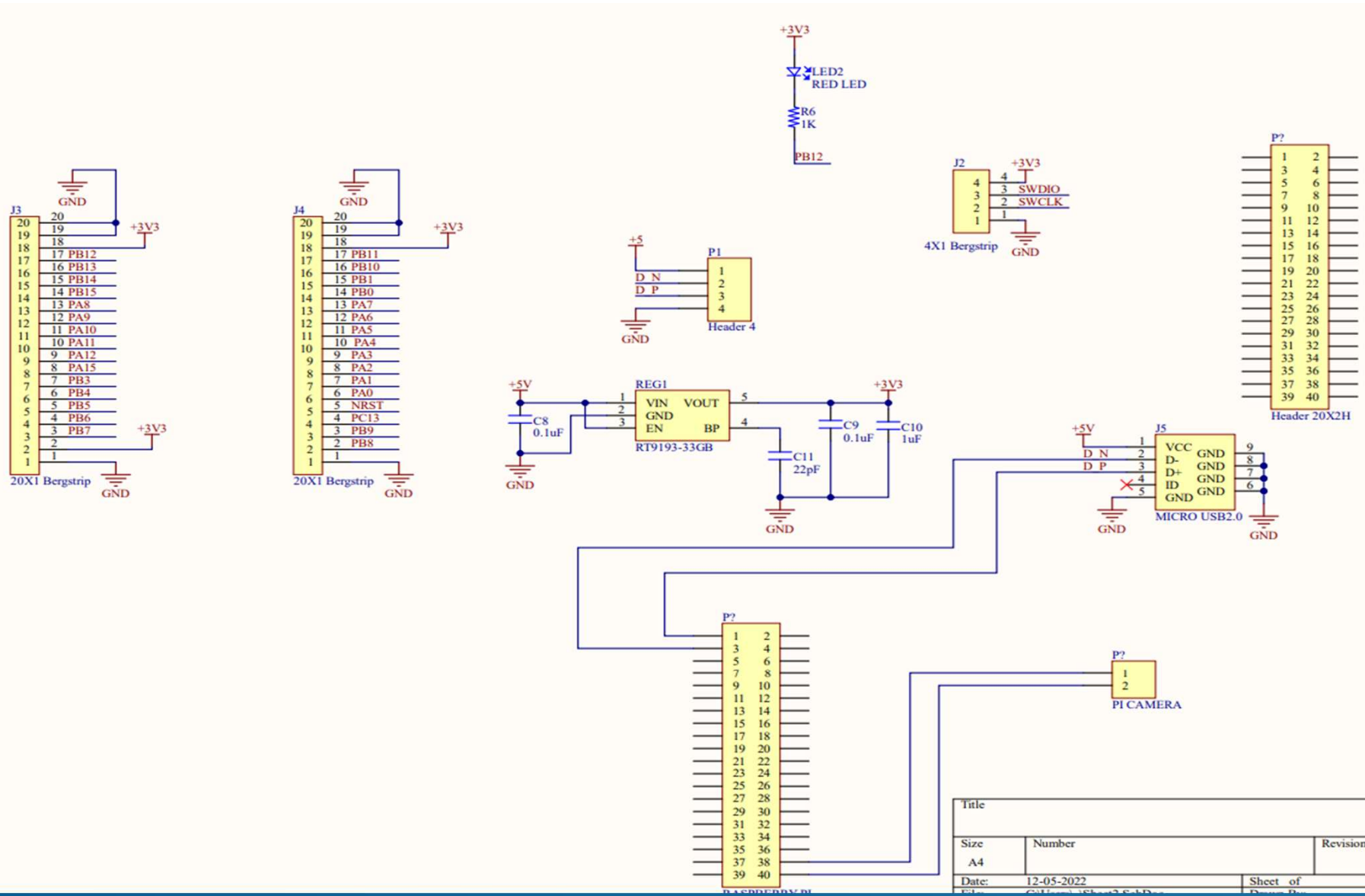
1. Image capturing using CCTV.
2. Vehicle Detection and Calculation of Traffic Density
3. Calculation of Green Signal Time
4. Scheduling Algorithm using parameters defined
5. Updating traffic signal times

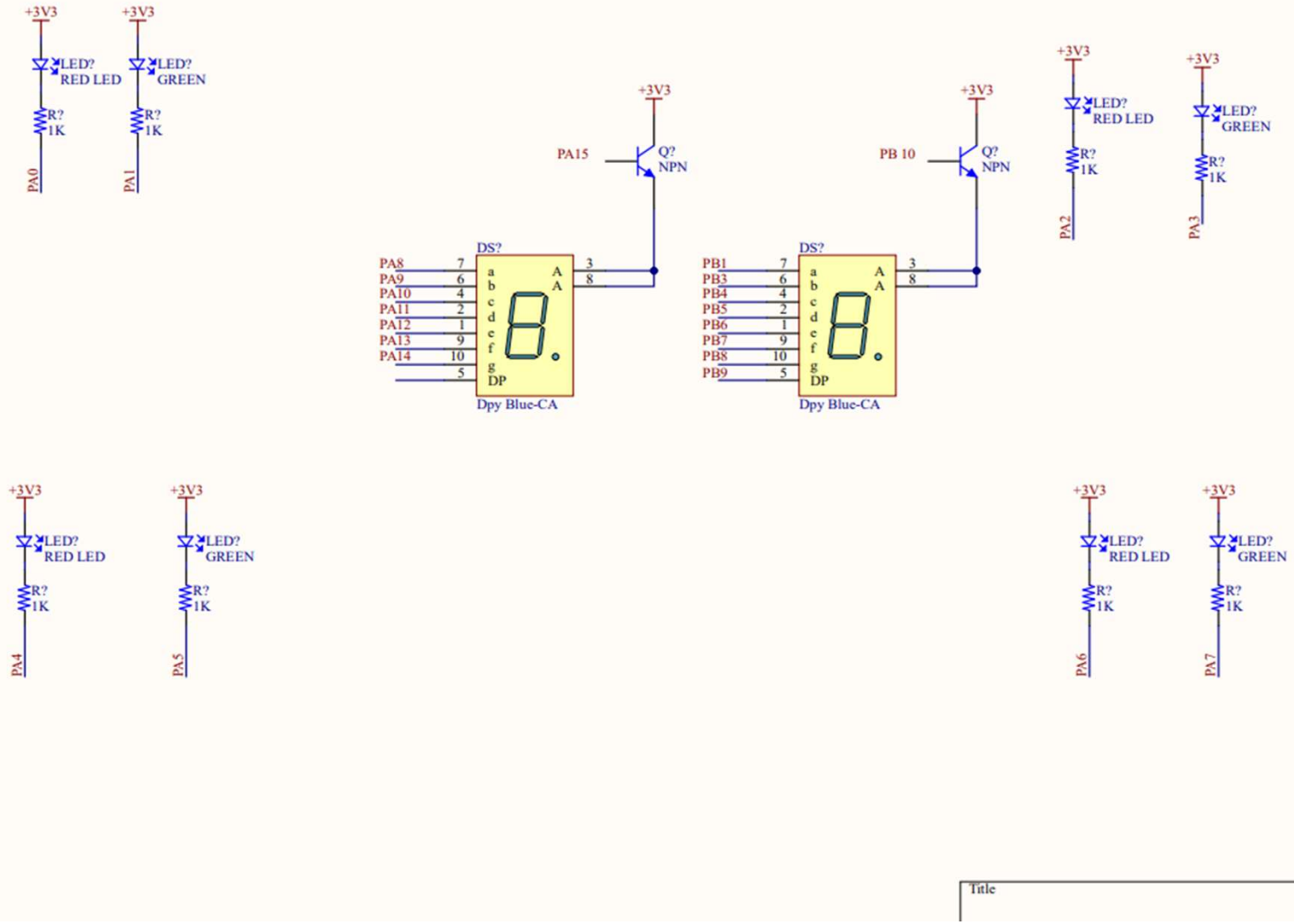


SCHEMATIC DIAGRAM



Title		
Size A4	Number	Revision
Date: 12-05-2022		Sheet of
File: C:\Users\..\Sheet1.SchDoc		Drawn By:


+3V3
LED2
RED LED
R6
1K
PB12
J3
20X1 Bergstrip
GND
+3V3
J4
20X1 Bergstrip
J2
4X1 Bergstrip
SWDIO
SWCLK
P?
Header 20X2H
+5
P1
D_N
D_P
Header 4
REG1
VIN
VOUT
GND
EN
BP
RT9193-33GB
C8
0.1uF
C9
0.1uF
C10
1uF
C11
22pF
J5
MICRO USB2.0
VCC
D-
D+
ID
PI CAMERA
Title
Size
A4
Number
Revision
Date:
12-05-2022
Sheet of


+3V3
LED?
RED LED
R?
1K
PA0
+3V3
LED?
GREEN
R?
1K
PA1
+3V3
PA15
Q?
NPN
DS?
PA8
PA9
PA10
PA11
PA12
PA13
PA14
a
b
c
d
e
f
g
DP
A
A
3
8
Dpy Blue-CA
+3V3
PB 10
Q?
NPN
DS?
PB1
PB3
PB4
PB5
PB6
PB7
PB8
PB9
Dpy Blue-CA
+3V3
LED?
RED LED
R?
1K
PA2
+3V3
LED?
GREEN
R?
1K
PA3
+3V3
LED?
RED LED
R?
1K
PA4
+3V3
LED?
GREEN
R?
1K
PA5
+3V3
LED?
RED LED
R?
1K
PA6
+3V3
LED?
GREEN
R?
1K
PA7
Title

Department of Electronics and Communication	
ECD415 S7-Project Phase-I S7ECA	
Due date	**Task**
27/09/2022	Group formation(Maximum 4 students per group)
29/09/2022	Allotment of Guide
7/10/2022	Literature survey, Select base paper, Finalize Project Title/Area
10/10/2022	Project Summary submission (Sample)
14/10/2022	First presentation on Title/Objectives/Methodology/Budgeting
	Seeking project funds from various agencies. Prepare a proposal in the standard format
04/11/2022	Submitting/Schematic/Layout/CAD Design/Simulation
18/11/2022	Second Presentation of the progress of the work (Schematic/Layout/CAD Design/Simulation)
30/11/202022	Presentation and demonstration of the prototype

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))

REFERENCES

LITERATURE SURVEY AND REFERENCES

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

THANK YOU