Automated Railway Control System

Implemented using PIC 16F877A , Protius and MikroC

Objective

- The aim of this objective is to design a automated railway gate and traffic light control system using PIC microcontrollers.

Introduction

- Automated railway control system is a simple but very useful , which helps in automatically opening and closing railway gates and also informing the people by traffic light and Displaying information upon detecting arrival or departure of the train.

- In general railway gates are opened or closed manually by a gate keeper. The information of arrival of train for opening or closing of doors is received from nearby station. But some railway crossings are totally unmanned, and many railway accidents occur at these unmanned level crossings.

- To avoid the human intervention at level crossings completely we need to automate the process of railway gate control.

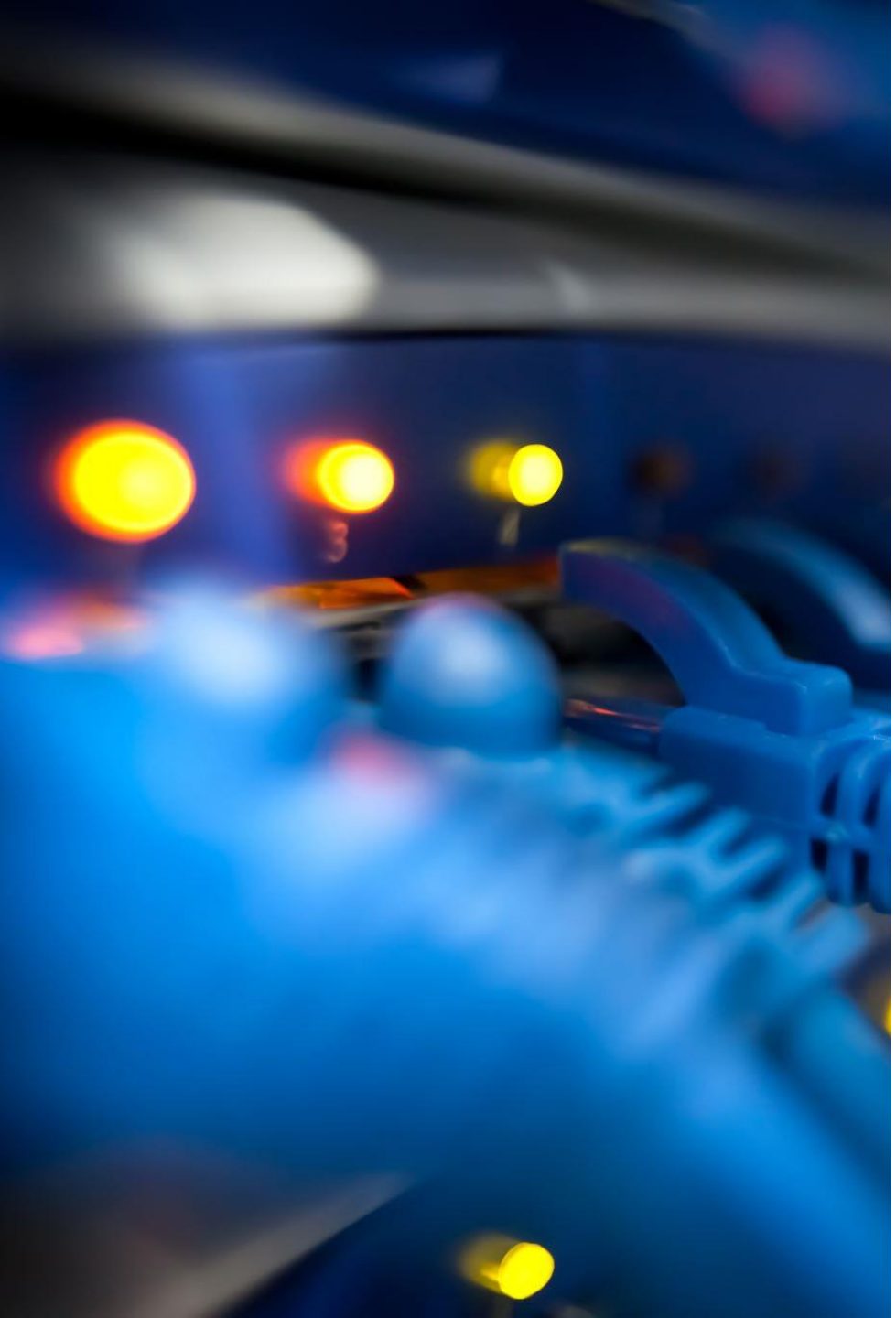
ADVANTAGES AND DISADVANTAGES

ADVANTAGES

- No human resource is required.
- Can be implanted in single railway road crossing stations.
- Prevents errors due to high number of sensor readings
- Reduce time which the gates remains closed.

DISADVANTAGES

- Energy requirements are high compared to manual control system
- Required skilled workforce to build

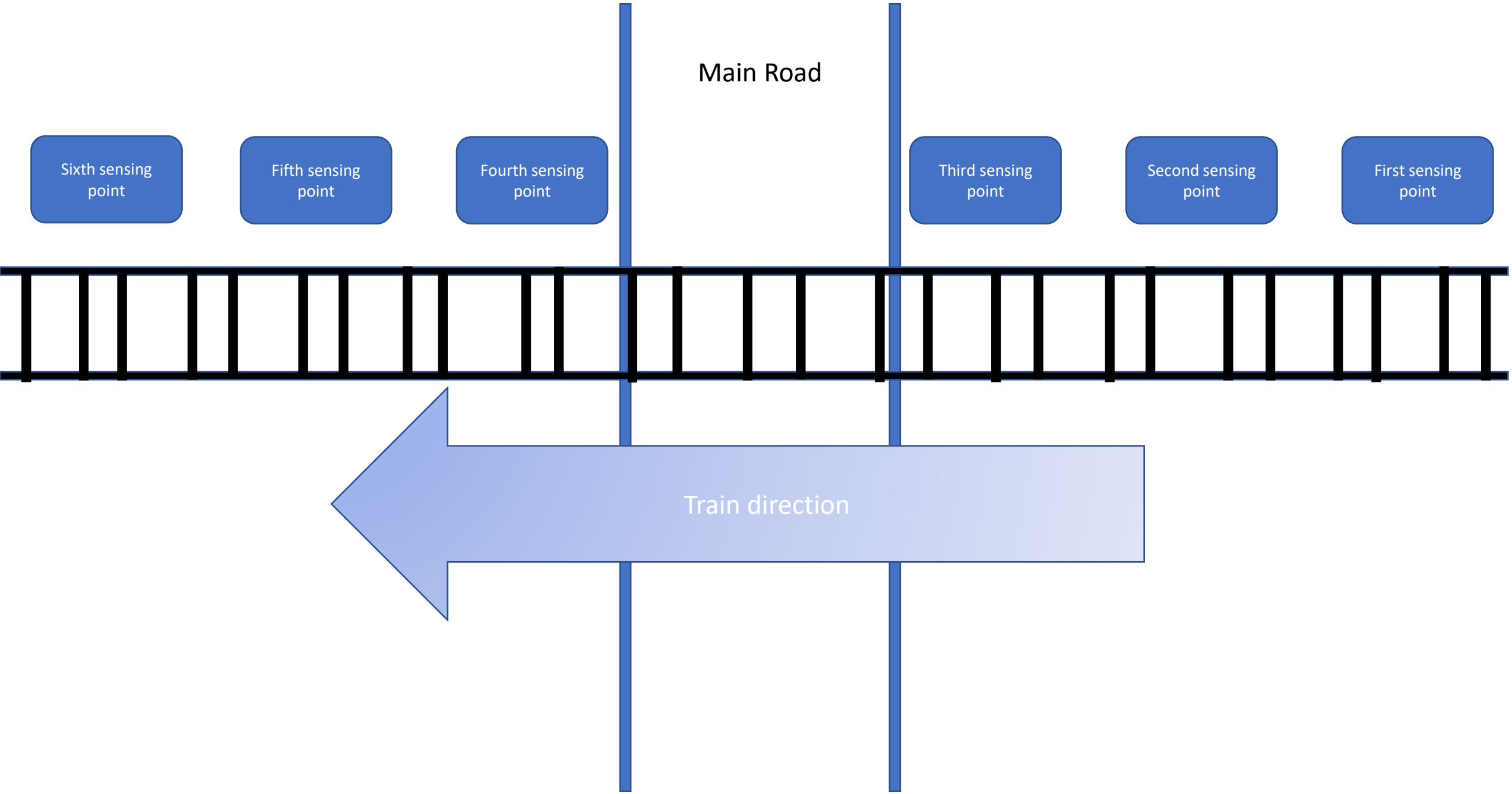


Components Used

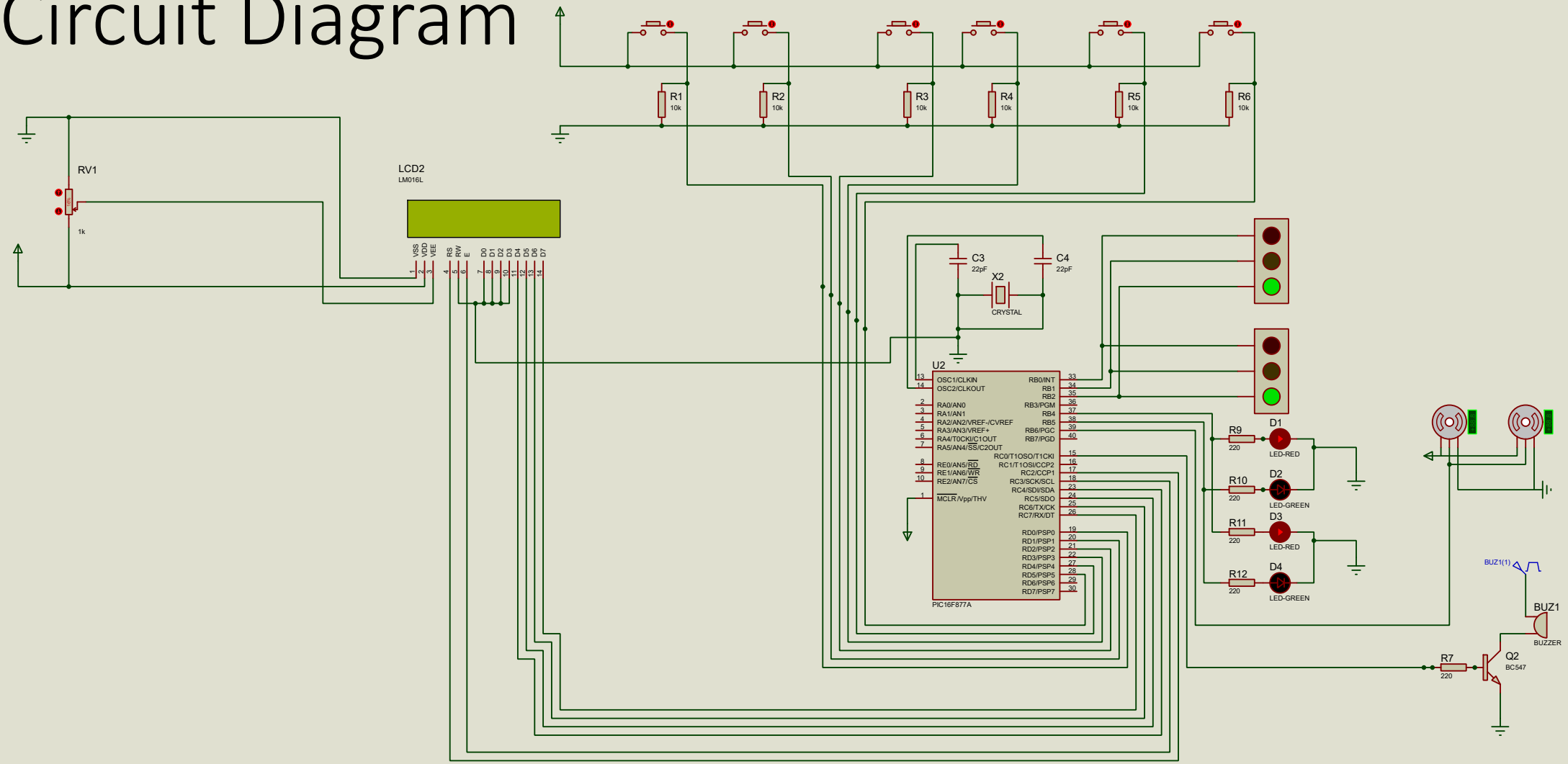
- PIC 16f877A
- Sensors
- LCD Display (LM016L)
- Potentiometer
- Buzzer
- BC548 Transistor
- Servo Motor
- Resistors
- LED (red , green)
- Traffic Lights

Principle of Operation

- When the train arrives at second sensing point alarm is triggered at the railway crossing and the signal changes to yellow so that the people get informed that the gate is going to be closed.
- Only after passing both first and second sensing points signal lights changes to red and gates start to close.
- After the train completely passes the fourth sensing point signal changes to yellow and to green to open the railway gates.
- If the train direction changes to opposite, sensor indexing should be inverted.


Main Road
Sixth sensing point
Fifth sensing point
Fourth sensing point
Third sensing point
Second sensing point
First sensing point
Train direction

Circuit Diagram



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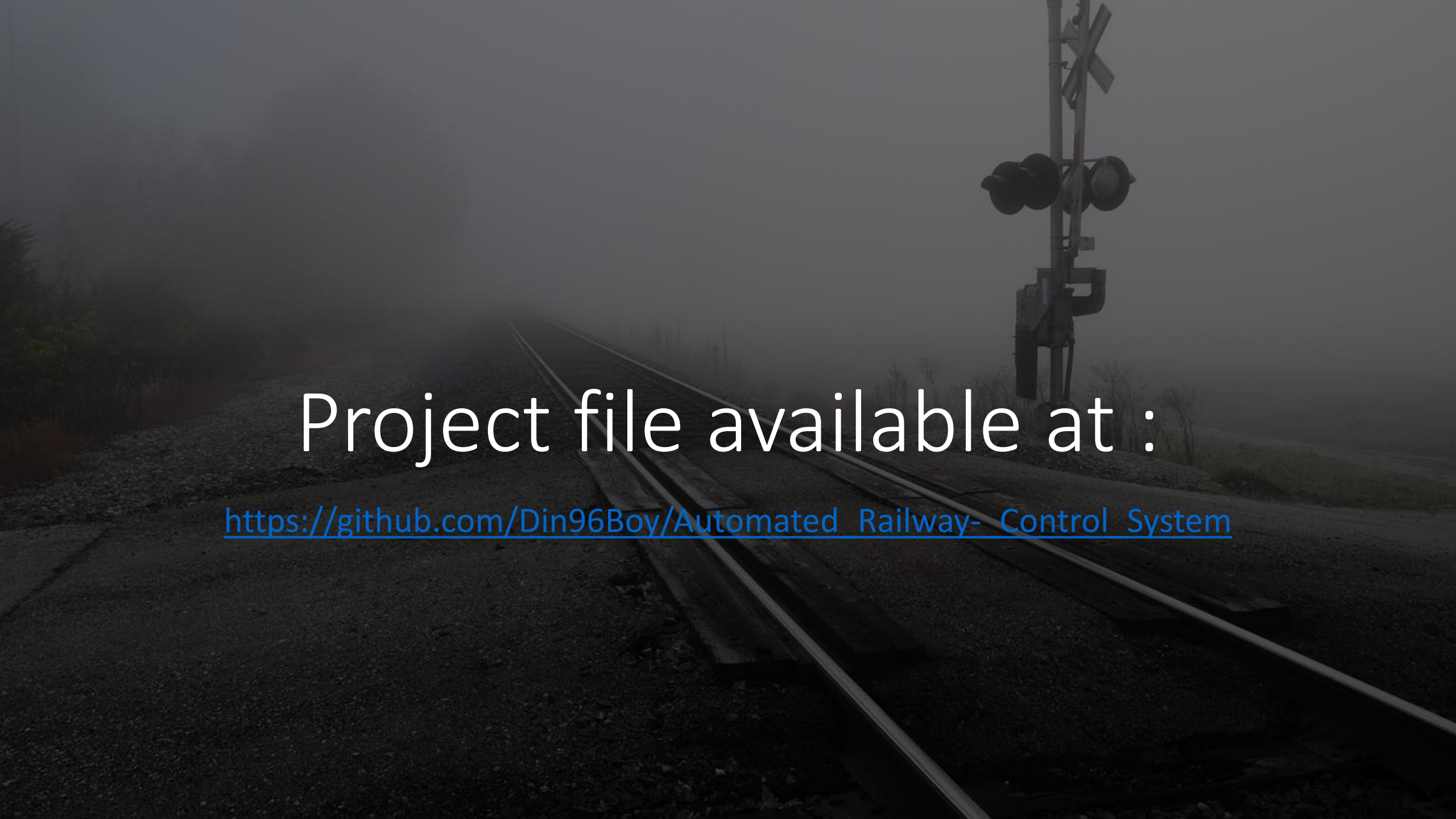

Project file available at :

https://github.com/Din96Boy/Automated_Railway-_Control_System

THANK YOU