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Automatic Railway Gate Control by Using PLC

Shivdas D. Suryawanshi
Student, Department of Electrical Engineering, Sanghavi College of Engineering, Nashik, India

Abstract—**Indian Railways safety is the main and crucial aspect of rail operation, as it is the most common & largest mode of commutation. This paper presents the different optimal solution for making the railway system automated, safe & environmental friendly. This proposed project provides three features, automatic gate control through which unmanned railway gates is achieved replacing the manual work, automatic energy saving at station which will save up to 60-70% of the electricity, and obstacle detection which will help to detect an obstacle on the path while the train is running.**

***Index Terms*— Automatic Railway Gate Control, PLC**

I. Introduction

A level crossing occurs where a railway line is intersected by a road or path on one level, without recourse to a bridge or tunnel. It is a type of at grade intersection.

The term also applies when a light rail line with separate right-of-way or reversed track crosses a road in the same fashion. Other names include railway crossing, railroad crossing, and road through railroad, train crossing or grade crossing.

This project is for remote area station where frequency of train is less, if there is a no train on platform only 40% of the total lights are switched on. As the train arrives at the station then 100% lights are switched on. So in this way energy can be saved and smart lightening system is designed.

A. Block Diagram

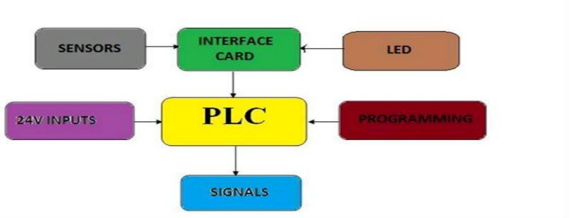

Fig. 1. Block diagram of automatic railway gate control by using PLC

B. Advantages

1. Easier and faster system change.
2. Less power consumption.
3. Reduces the chances of human error.
4. No human resource is required.

C. Disadvantages

The disadvantages of this are the daily maintenance is required for the operation of sensors and all switching devices.

D. Applications

1. Railway gate controlling.
2. Parking gate controlling.
3. Also use in industrial applications for closing and opening the gates.

II. Conclusion

Automatic Switching of Multi Railway Track. Automation of Railway Station having more than one platform. Speed Control of Railway Engine. Collision of Two Trains on same track can be avoided by automatic braking system using PLC. Avoid manual errors and provides ultimate safety to road users. Gatekeeper not necessary and automatic operation of the gate through the motor. The mechanism works on simple principle.

III. Future Scope

1. The main aim of this project is to atomize the unmanned railway gate.
2. The gate is closed automatically whenever the train comes and is opened after the train leaves the railway-road crossing.

References

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