UNIVERISTY OF MANAGEMENT AND TECHNOLOGY

SCHOOL OF SYSTEM AND TECHNOLOGY

FINAL YEAR PROJECT REPORT

Automatic Railway Alert and Control System

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AUTOMATIC RAILWAY ALERT AND CONTROL SYSTEM

In Partial fulfillment of the requirement for the award of Degree of

BACHELOR OF SCIENCE

IN

TELECOMMUNICATION AND NETWORK SYSTEMS

DEDICATION OF ORIGINALITY

We declare that this project "AUTOMATIC RAILWAY ALERT AND CONTROL SYSTEM " is created by us and is performed under supervision of our respected advisors and teaching members in our department.

ACKNOWLEDGEMENT

First of all thanks to Allah Almighty who gave us chance to complete this degree and reach to the final year project. Thanks to our all supporters and advisors who make this journey of Final Year project easy for us.

This final year project report is made for School of System and Technology, University of Management and Technology.

I would like to place on record my deep sense of gratitude to Sir Salman Manzoor, School of science and Technology, UMT Lahore our project advisor for his generous guidance, help and useful suggestions.

I also wish to express gratitude to Sir Fahad Zia, Sir Usman Inayat for suggestions and improving our overall final year project outlook and features. We also acknowledge all of our Batch fellows, advisor, teachers and specially our families who support us finically and provided us great support.

ABSTRACT

Railway Systems remains the main component of the infrastructure of any country. Safe and efficient railway system is a necessary part of every country. Our railway system has a lot of loop holes in it which results in loss of lives and trains. In our project we have proposed a safe and sound control system which ensures safety and smooth running of railways. This system can save lives which we loose on crossing as well as man power can be reduced by this system and made an overall efficient railway system. We are using Arduino as our main controller and Rf communication to communicate with train. We are also using GSM module to send message to base in case of any issue in the system.IR sensors are used to detect the train and servo motors are used on barriers. We are controlling the train of speed when it's near to crossing and stops it if barriers are not closed upon train's arrival. Train speed control is achieved by the technique called Pulse Width Modulation.

Similar system is already implemented in modern countries and they are getting good results from it.

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Chapter 1

Introduction

Our main purposed of this project is to smoothly run the railway control and alerting system. We have proposed to replace manual railway alert system with automatic control system, in which there lies a centrally controlled system. Our project can result in an efficient solution to all the problems our railway is facing.

1.1 Introduction to Railway systems

Railway is the backbone of every country's infrastructure. Railway provides solutions to the transport problem as well as moving cargo from one end of country to other in less cost.

Our railway is having an old structure which we get when Pakistan came into being in 1947.

We haven't progressed as much as we should. A lot of things are updated and upgraded but railway control systems are still the same as we got it in 1947.

Arrival of train is still conveyed by the weaving of a flag and railway crossing are manually closed and opened. Many times incoming train if not detected due to human or any other error it causes severe loss of lives and railway engines.

Railway systems in modern countries are so high-tech they are totally automatic and centrally controlled. They are proving them good and efficient results in terms of cost and lives.