

# Tracing Trains Position on Check Point over SCADA Infrastructure

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**Abstract**— In existing system position of trains are decided by the reporting of the trains on the stations .When any train arrives at station and departs for next station, the existing system is unable to find the position of trains in between the two stations. In this system we will implement system which is cost effective solution to resolve above problems .In our system we are going to design a network of check points .And we obtain the position of the train in between the two check points .Also we display on LCD whether the peoples crossing the gate is allowed or not allowed. Data acquisition is done by the SCADA system and monitoring of acquired data is done with help of Goggle maps .We will show the current status of the train on the Google map which will help us to determine the train's real position.

**Key words:** Tracing Trains Position, SCADA

## I. INTRODUCTION

As discussed about our project that is tracing train position based on check point over a SCADA infrastructure, we use such components as Microcontroller (28 pin) - ATmega328 (8 Bit MC), Ethernet Shield - Wiznet 5100,16x2 LCD , 16 MHz Crystal- Full profile crystal, Voltage Regulator(5V)- IC 7805, Voltage Regulator(3.3V)-LM1117T, Ethernet cable, 28 pin IC stand, Capacitors 10 Micro Farad, 10K Resistor, LED lights,5K Potentiometer etc.

SCADA (supervisory control and data acquisition) is a system operating with coded signals over communication channels. Industrial control systems are computer-based systems that monitor and control industrial processes that exist in the physical world.

In this system we create such a system which can tracing train position on check point between two railway stations.

Our server may connected to both at the location where the system mount and the web applications that is Google map.

When train is passed near the checkpoint manually we change the signal i.e. red or green. That signal will change in our server i.e. our computer, then in mobile signal will locate through app.

## II. LITERATURE SURVEY

The computer can record and store a very large amount of data. Thousands of sensors over a wide area can be connected to the system, but the system is more complicated than the sensor to panel type. The need to monitor the process and possibly control the operation of railway system from virtually anywhere is becoming an important issue. It can be also possible for the operator to control the parameters of the system from remote place.

The communication is made by means of special busses or LAN network .Most important thing in our project is use for safety and security purpose in

online monitoring web application .In web application we can use google map with the signal indicator.In this project we will implement the system which is cost effective solution or resolve position of trains problem .

In our system we are going to design a network of check point. And we can obtain the position of the train in between two check points.

The above study is based on the given references.

Musaria K.Mahmood, Fawzi M.AI-Naima has proposed an efficient, fast and effective control system has become a vital need in industrial sector. An internet and SCADA system interconnection based on industry accepted communication standards is offered as a solution.

S.Jing and Q.Meng has proposed that monitoring industrial real-time data an executing some control operations using Web browser is one of new tool in the market.

Musaria K .Mahmood ,Fawzi M .AI-Naima has proposed that internet based SCADA system offers solution by enabling any user to supervise and control all operations remotely from any part of the world with internet connection by any Web browser.

## III. OBJECTIVE OF PROJECT

The objective of the project is to trace the train position on check point over SCADA infrastructure .Which can be help us to check the position of train.

### A. Methodology

#### 1) Proposed Block Diagram

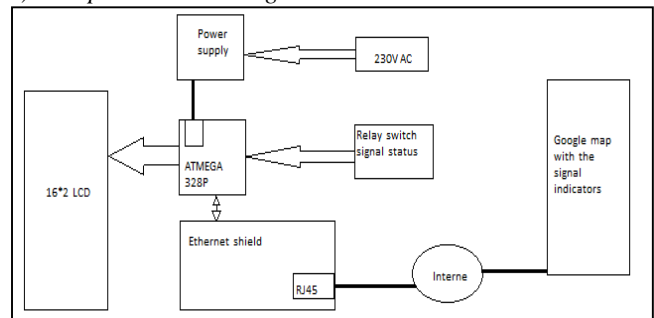


Fig. 1: Block diagram of tracing train position based on check point over SCADA infrastructure

In existing system position of trains are decided by the reporting of the trains on the stations .When any train arrives at station and departs for next station the existing system is unable to find the position of trains in between the two stations.

In this project we will implement the system which is cost effective solution to resolve above problems. Data acquisition is done by SCADA system and monitoring of acquired data is done with help of Google maps.

### B. ATmega328 Microcontroller:

ATMEL 8-bit microcontroller with 4/8/16/32 K Bytes. ATmega328 has High performance ,low power Atmel

AVR 8 bit microcontroller family .It has advanced RISC architecture.

### C. Ethernet Shield:

The arduino Ethernet shield connects your arduino to the internet .Just plug this module onto your arduino board, connect it to your network with an RJ45 cable and follow a few simple instruction to start controlling your world through the internet .The arduino Ethernet shield allows an arduino board to connect to the internet .This all received data will get presented on LCD display.

We will show the current status of the train on the Google map which will help us to determine the trains real time position .

## IV. CONCLUSION

We will show the current status of the train on the Google map which will help us to determine the train's real position and also display on LCD whether the peoples crossing the gate allowed or not . Outputs with Web application or/and android application.

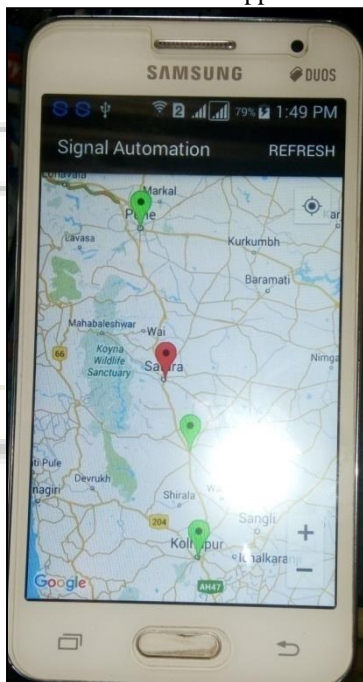


Fig. 2: Current Status of the train

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