DEVELOPMENT OF ADVANCE SENSOR TECHNOLOGY AND WIRELESS INDICATOR FOR TRACTOR TROLLEY SYSTEM TO PREVENT ACCIDENTS

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Abstract: Road accidents have become very common nowadays. As more and people are buying automobiles, the incidences of road accidents are just increasing day by day. It is observed that the major cause of sugarcane tractor accident is "Rear end collision". Taking this into consideration, we have decided to address this issue. For, this we have done analysis as below. Generally, while driving sugarcane tractors with trolley it not possible to find in which direction this tractor will going to turn. Even though indicators are provided to the tractor does not trolley. So, when tractor driver gives signal for turning that signal is not visible for vehicle behind the sugarcane tractor trolley. When trolleys are loaded with sugarcane that are not visible at night from far distance. Also, when driver apply sudden breaks it is not possible to identify vehicle behind the trolley due to break light. So simple solution for this, providing indicator for trollies. But due to trolley get separated from tractor many times it is very difficult procedure to provide electric supply for indictor. So now, next challenge is how to provide supply for indicator.

Index Terms - **Analysis the road accidents for sugarcane tractor trolley problem and provide solution through wireless indicator.**

INTRODUCTION

Professor Ramesh ("Rudy") Shankar of the UNC Charlotte Energy Production Infrastructure Center created implementation guidelines and spearheaded the first wireless sensor technology use at an operationalutility. Standard measurement equipment known as wireless sensors have transmitters built into them that enable process control instruments to transmit signals via radio. After obtaining sensor data from the subject,the wireless sensors transmit the information to the controller. The data is sent to the base station by the controller. The receiver and base station are linked wirelessly. Data is sent to the receiver from the base station, where it is shown to the user. An ad hoc deployment of several wireless sensors creates an infrastructure-less wireless network called a wireless sensor network, which is used to monitor any kind of system, whether it be physical or surroundings. In Wireless Sensor Networks (WSN), sensor nodes are utilized in conjunction with the onboard CPU to manage and monitor the environment in a specific area. Theyare linked to the Base Station, which serves as the WSN System's processing hub. A WSN system's base station connects to the Internet in order to share data. My group and mentor made the decision to use wirelesssensors in order to stop the sugarcane tractor-trolley accident

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I. OBJECTIVES

1) To make advance sensor technology and wireless indicator .
2) To implementation and checking the performance .
3) To reduce the accident by using sensor technology and wireless .

II. FUTURE SCOPE:

1.Very easy process to provide indicator to trolley unit for sugarcane tractor.

2.Driver can give signal for turning direction to vehicle behind.

3.Driver can easily give stopping and parking signal to vehicle behind.

4.Signal given by sugarcane tractor can be easily visible for vehicle behind the tractor trolley.

- **What is Wireless Sensor Network:**

A wireless sensor network (WSN) is made up of numerous nodes with sensors and controllers that collect and track data as well as interactions with the surrounding environment. This facilitates the establishment of connectivity amongst people, computers, and the environment.
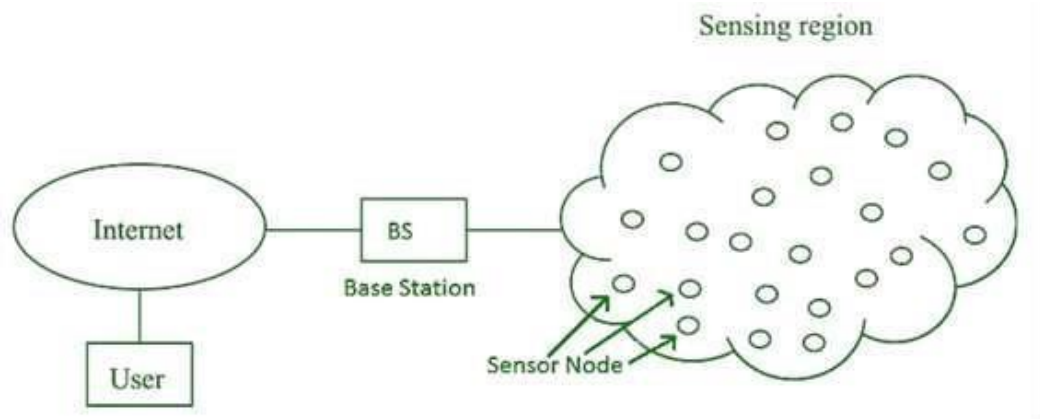
- **Aim of Wireless Sensor Network :**

- The purpose of a WSN is to collect environmental data, and the node devices' initial placement may be known or unknown. Any device that a network node communicates with, whether physically or logically, establishes the topology for that network node based on the application.
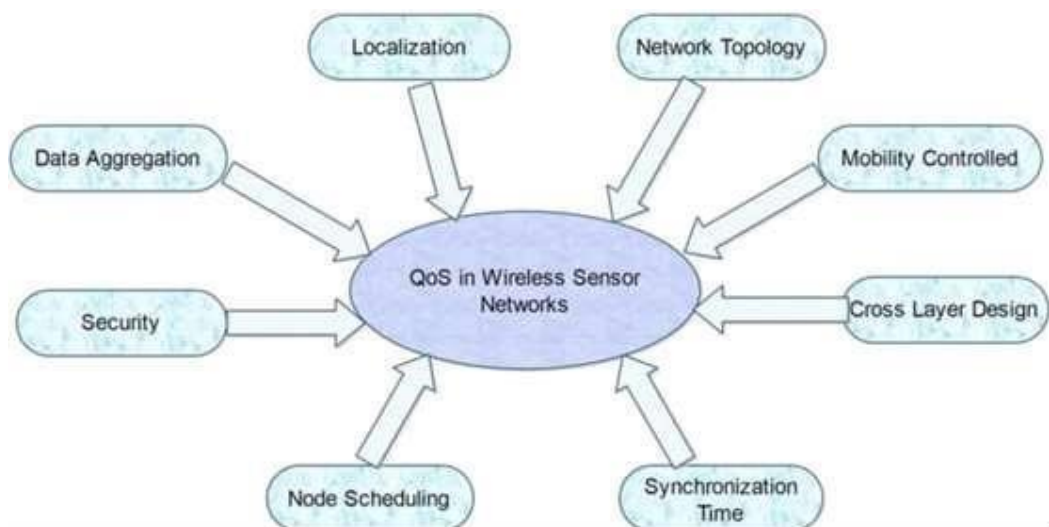
- **Name of Wireless Sensor used in Project :**

   Arduino Nano 433 Mhz RF remote with receiver 4 channel relay DC to DC bulk convert.

- **Components of sensor : -**

- Arduiono nano
- RF Receiver
- Step Bulk Converter
- Relay

- **Arduiono nano: -**

A compact, multipurpose microcontroller board built on the ATmega328P chip is called the Arduino Nano. Its primary purpose is to offer a platform for different electronic project programming and control. It can be used for a variety of purposes, including regulating motor or LED outputs, detecting inputs from sensors, sending serial data to other devices, and much more. Because of its small size and USB connectivity, it is well-liked for embedded applications and prototyping.

- **RF Receiver :-**

An apparatus that accepts radio frequency (RF) signals and transforms them into a format appropriate for additional processing, including data, video, or audio, is called an RF receiver. Its primary job is to intercept, amplify, and demodulate radio frequency (RF) signals from an antenna in order to retrieve the data they contain. Other systems or devices can then process and make use of this information. Applications for RF receivers are widespread and include wireless networking, broadcasting, telecommunication, and remote control systems.

- **Step Bulk Converter:-**

A procedure or apparatus that transforms large amounts of materials or objects from one form to another is commonly referred to as a "strip bulk converter" function. It is difficult to give a definite definition or

explanation, nevertheless, in the absence of additional context or details. Could you maybe elaborate on your meaning of "strip bulk converter function" or provide more specifics?


- **Relay** :-

An electromechanical switch driven by an electric current is called a relay. It is made up of one or more sets of contacts and a coil. An electrical circuit can be completed or broken when electricity passes through the coil and produces a magnetic field that causes the contacts to open or close.

The main purpose of a relay is to regulate the switching of a circuit to control a higher-power load or several loads using a low-power signal, usually from a microcontroller, PLC (Programmable Logic Controller), or another control circuit. Relays are used to isolate, amplify, and safeguard the control circuitry in a variety of applications, such as home appliances, automobile electronics, industrial automation, and more.

☐ **Preparation Of Wireless Indicator**
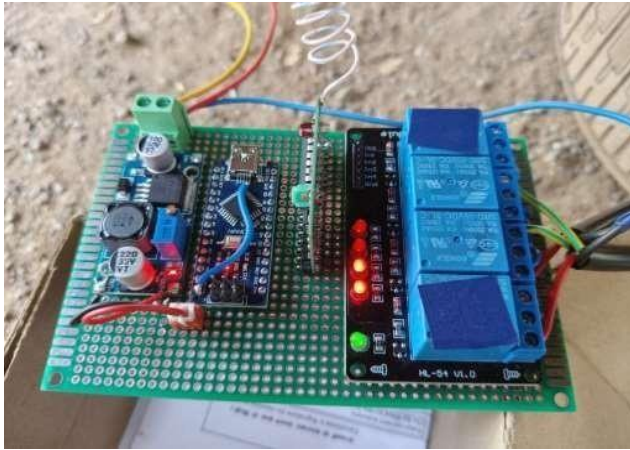
1. Sensor   2.Battery

3.Indicator

• **Fitting Arrangement in Trolley:-**

• **Testing And Performance:-**

1.Click A Button :- Left Light on   2.Click B Button :- Right Light on

3.Click C Button :- Light Off   4.Click C Button :- Parking Light

- **Impact on village beneficiaries**

1.Traffic Management: - Due to wireless sensors, traffic management of tractor- trolley implements can be done very smoothly.

2.Safety precaution: - The use of wireless sensors and parking system sensors will make it easier for the tracker to signal the following vehicles while turning or stopping, thereby controlling accidents.

3.Community benefit: - Tractor is commonly used in villages for farming purpose and used in transport the sugarcane to factory. It is reducing the accidental proportion in rural and urban areas. So, it is useful for all community.

- **CONCLUSION:-**

1. Prevent the road accidents for tractor trolley.

2. Reduce the road accidents for tractor trolley.

3. We learned wireless sensors.

4. How to use wireless sensor.

- **Application:-**

1.Tractor Trolley.

III. REFERENCE:

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