LORA BASED SUSTAINABLE LIVESTOCK MONITORING SYSTEM

DR. P M BENSON MANSINGH*	ASSISTANT PROFESSOR, ECE, SRI RAMAKRISHNA INSTITUTE OF TECHNOLGY, COIMBATORE, INDIA - 641010.
RAGUVEER PRASATH.V	STUDENT, ECE, SRI RAMAKRISHNA INSTITUTE OF TECHNOLGY, COIMBATORE, INDIA - 641010.
SABAREESWARAN.M	STUDENT, ECE, SRI RAMAKRISHNA INSTITUTE OF TECHNOLGY, COIMBATORE, INDIA - 641010.
SHANMUGARAJAN.S	STUDENT, ECE, SRI RAMAKRISHNA INSTITUTE OF TECHNOLGY, COIMBATORE, INDIA - 641010.

ABSTRACT:

The goal of the project that agricultural farmers manage and watch over is various kinds of cattle. Since, cattle do not remain in one place for extended periods of time, manual inspection and monitoring of livestock is laborious. The cost of fencing many cattle is high, and farmers must physically monitor the animals to prevent them from straying past the entry points. It takes time and effort to visually track cattle and fencing. This project offers a cutting-edge IoT-based smart solution for geofencing and livestock tracking.

KEYWORDS:

LORA, LIVESTOCK, RF TRANSMITTER, RF RECEIVER, GEO – FENCING, ATMEGA328.

INTRODUCTION

The rapidly growing population of the world reduced farming areas because of industrialization, the exodus of farmers to urban areas, and climate change are some of the factors that are challenging the agricultural industry to the next level. To feed the world's expanding population, a strong and innovative agriculture sector is crucial. To feed the world's expanding population, a strong and innovative agriculture sector is crucial.

MATERIALS AND METHODS:

The LoRa Alliance, a non-profit organization and quickly expanding technological alliance, is responsible for driving the global harmonization and standardization of the LoRaWAN protocol. LoRaWAN is recognized by the International Telecommunication Union (ITU) as an LPWAN standard. LoRa is ideal for applications that transmit small chunks of data with low bit rates. Due to these characteristics, LoRa is a good choice for low-power sensors and actuators. The license free sub-giga hertz bands, such as 915MHz, 868MHz, and 433, can be used for LoRa operations.

RESULTS:

The results of the comparison tests show that, in terms of signal coverage performance, the LoRa network performs better than traditional wireless networks used in the power grid. The signal coverage of the indoor distribution systems of the telecom operators cannot reach all building sheltered electric environments, so the power grid businesses can use the LoRa network or another LPWAN with comparable communication performance as the communication channel for low-bit rate M2M power grid services.

DISCUSSION:

When livestock attempt to cross the designated zone boundary, the system alerts the farmers. Moreover, communication and navigation are automatically managed in accordance with the genetic variety of various species. The technology measures each animal's distance from the safe zone's geographic limit and alerts the farmer when it approaches a certain threshold. In the event that animals are beyond the protected zone for a predetermined amount of time, the suggested technology can pinpoint their precise position.

CONCLUSIONS:

The creation of a physical paddock to track the spatio temporal movements of cattle. With a traditional live stock monitoring system, farmers must strain themselves physically to find livestock that stray from the usual entry points. The suggested method takes care of these problems by making it simple for farmers to designate a livestock safe zone geographically. In order to maximize the energy and communication bandwidth for effective usage, the sensor pauses navigation and communication while the animal is captured in a static condition.

TABLES AND FIGURES:
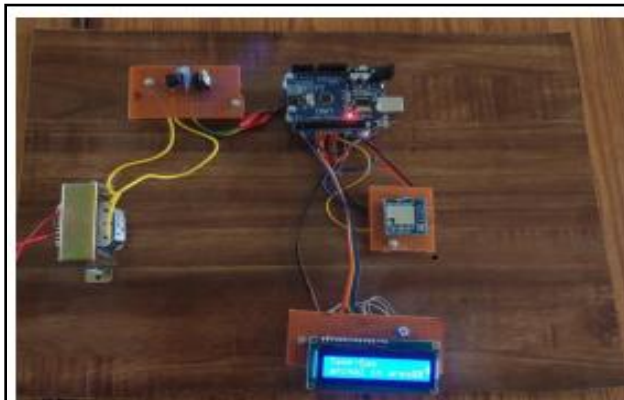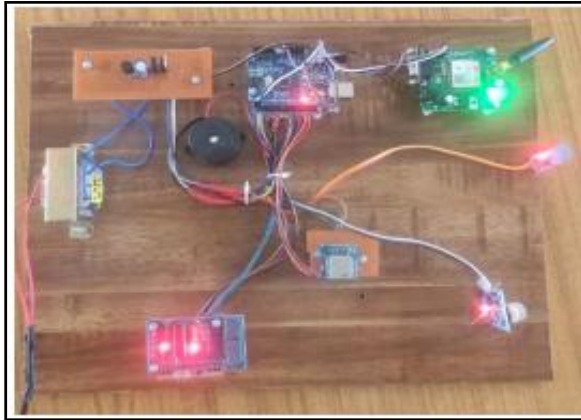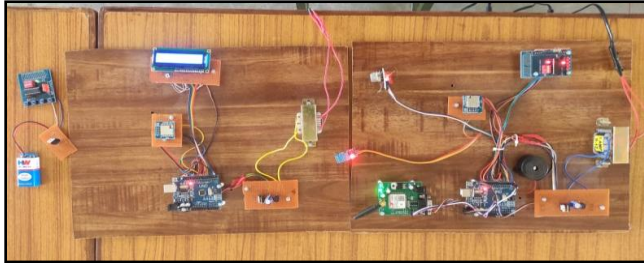
The pinMode(), digitalWrite(), and digitalRead() routines allow you to use any one of the Uno's 14 digital pins as an input or output. They require 5 volts to work. Each pin contains an inbuilt pull-up resistor of 20 to 50 kOhms that is unconnected by default and has a maximum current capacity of 40 mA. Moreover, several pins perform specific tasks: Sequence: 0(RX) and 1 (TX). used to transmit and receive TTL serial data (RX and TX). In order to maximize the energy and communication bandwidth for effective usage, the sensor pauses navigation and communication while the animal is captured in a static condition.

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