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Automatic Cow Location Tracker and Health Monitoring System

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ABSTRACT--An Automatic Cow Location Tracker and Health Monitoring System is a solution for cattle owners and farmers to monitor their livestock's whereabouts and health status in real-time. The system employs a neckband fitted with sensor and gps module that track the cow's location and measure vital health parameters, such as body temperature and heart rate. This data is transmitted wirelessly to a central database, where it is analyzed and presented in a user-friendly dashboard accessible to the farmer.

I.INTRODUCTION

The implementation of the Automatic Cow Location Tracker and Health Monitoring System has proven to be a game-changer for the farming industry. This innovative solution allows farmers to monitor their cows' health and location in real-time, which can help reduce the risk of disease outbreaks and improve the overall health of the herd. Additionally, the system can help farmers reduce their labor costs and save time by automating the process of monitoring the cows' health and location. The data collected by the sensors in the neck band is analyzed by the central monitoring system, providing farmers with valuable insights into their cows' health and location. This information can help farmers make informed decisions about the management of their herd, such as adjusting their feeding schedules, providing medical attention to sick cows, or locating lost cows. Overall, the Automatic Cow Location Tracker and Health Monitoring System using a neck band is a reliable and efficient solution that can revolutionize the way farmers manage their herds. The neck band is designed to be comfortable and non-intrusive, ensuring that the cow can move around freely while wearing it. The sensors in the neck band monitor various parameters such as the cow's body temperature and heart rate. This data is then transmitted wirelessly to the central monitoring system. The GPS technology in the neck band allows farmers to track the location of their cows in real-time, which can be especially useful in large farms where cows may wander off or get lost.

The Automatic Cow Location Tracker and Health Monitoring System using a neck band is an innovative solution that can help farmers to monitor the health and location of their cows efficiently. The central monitoring system is the heart of the Automatic Cow Location Tracker and Health Monitoring System. It receives and analyzes the data transmitted by the neck band sensors, providing farmers with insights into the cow's health and location. The system can detect any changes in the cow's body temperature or heart rate, indicating potential health issues. Additionally, the GPS technology in the neck band allows farmers to track the location of their cows, making it easier for them to locate lost cows. Improving cow flow, which reduces herding time. Allowing cows to travel comfortably and easily over considerable distances from the parlour. To detect various diseases based on behavioral changes and symptoms.

II. PROBLEM DEFINITION

Major problem in cattle farming are unable to detect illness at early stage. If initial illness not treated properly it will developed as major disease. And can be spread to all others cattle. It leads to death and capital loss. In large farms where cows may wander off or get lost.

III. METHODOLOGY

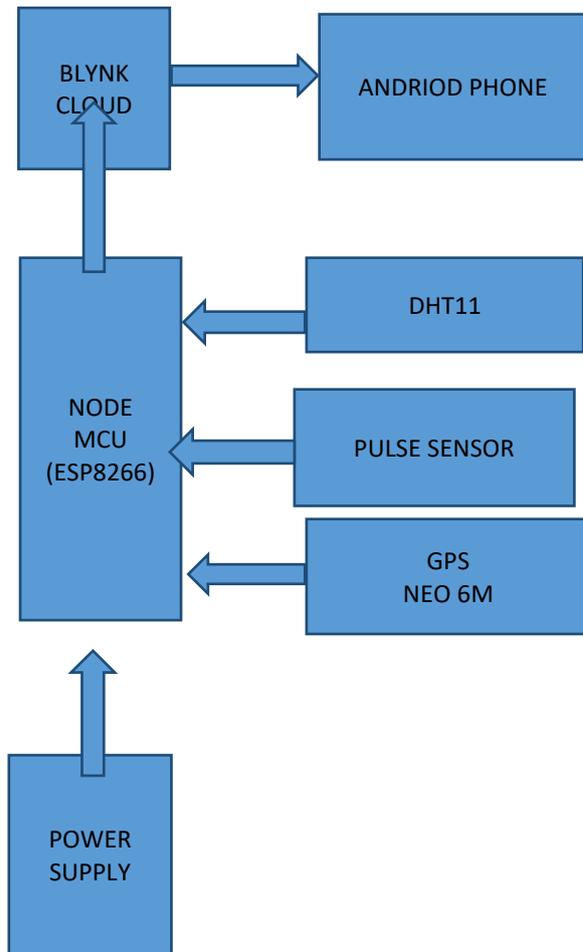


Figure 3.1 :Block diagram of Automatic cow location tracker and health monitoring system.

The figure 3.1 Shows the Block diagram of Automatic cow location tracker and the health monitoring system. The DHT11, Pulse sensor, GPS NEO 6M Module is Connected to the NODE MCU (ESP 8266) and through internet it is connected to the Blynk cloud, From the cloud it is connected to the android mobile app(Blynk IOT)

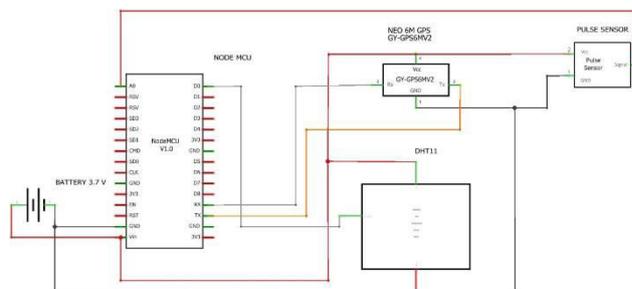


Figure 3.2: Circuit diagram of Automatic cow location tracker and health monitoring system

The figure 3.2 shows the circuit diagram of Automatic cow location tracker and the health monitoring system. The cow location tracker system primarily consists of an IoT controller called ESP 8266, which communicates sensor data to the Blynk cloud. The pulse sensor, which is one of the sensors in the system, acquires data on the pulse of the animal and

sends the signal to the controller. The controller processes the data and pushes it into the android app via cloud. In addition to the pulse sensor, the DHT sensor is used to collect temperature data. The temperature data is also sent to the cloud in the same manner as the pulse data. Finally, the GPS sensor connects to satellites to collect the longitude and latitude values, which allows the present location of the animal to be shown on the map widget. The ESP 8266 is a low-cost, Wi-Fi enabled microcontroller that is widely used in IoT applications. It is capable of communicating with other devices via Wi-Fi, making it ideal for remote sensing applications. The pulse sensor used in the cow location tracker system is a non-invasive sensor that measures the heart rate of the animal by detecting changes in blood volume. The DHT sensor is a digital temperature and humidity sensor that provides accurate temperature and humidity readings. The GPS sensor used in the cow location tracker system is a global positioning system that is capable of providing accurate location data. It works by receiving signals from satellites and triangulating the position of the device. The GPS sensor is an essential component of the cow location tracker system, as it provides real-time location data for each animal in the herd. All of the sensors in the cow location tracker system are connected to the ESP 8266 controller, which acts as the central hub for the system.

The controller collects data from each sensor and sends it to the cloud via Wi-Fi. The Blynk cloud is used to store and process the sensor data, and it also provides an interface for the android app that is used to monitor the system.

The android app used in the cow location tracker system is designed to provide real-time monitoring of the vital signs and location of each animal in the herd. The app displays the location of each animal on a map, along with the temperature and pulse readings. The app also provides alerts if any abnormal readings are detected, allowing farmers to quickly respond to any potential health issues. The cow location tracker system is powered by a 5V voltage and is equipped with a Li-ion battery, which provides the required power to run the system. The battery is rechargeable, which makes the system a cost-effective solution for monitoring the location and vital signs of cows in a herd. The cow location tracker system is an excellent example of how IoT technology can be used in agriculture to improve the efficiency and accuracy of farming operations. The system utilizes sensors to collect data on the vital signs and location of cows in a herd, and the data is processed and stored in the cloud. The android app provides real-time monitoring of the data, allowing farmers to quickly respond to any potential health issues. Overall, the cow location tracker system is an innovative solution that can help farmers to improve the health and productivity of their herds.

IV. ADVANTAGES

- Increased Efficiency: By using an automatic cow location tracker, farmers can quickly and easily locate their cows without spending a lot of time searching for them. This can increase the efficiency of the farm operation and save time and labor costs. Small-scale UAV's make the vehicles safer for close interaction.
- Improved Safety: Automatic cow location trackers can also improve safety on the farm. By knowing where the cows are at all times, farmers can avoid accidentally injuring or killing them with farm equipment.
- Early Disease Detection: Automatic cow health monitoring systems can detect early signs of disease, allowing farmers to intervene early and prevent the spread of illness.
- This can save time and money by reducing the need for expensive treatments and minimizing the risk of production losses.
- Reduced Labor Costs: By automating health monitoring, farmers can reduce the amount of time and labor required for manual monitoring. This can free up valuable resources and allow farmers to focus on other aspects of their operation.

V. APPLICATIONS

- Efficient Herd Management.
- Disease Prevention and Detection.
- Reproductive Health.
- Animal Welfare.
- Environmental Monitoring.

VI.RESULT

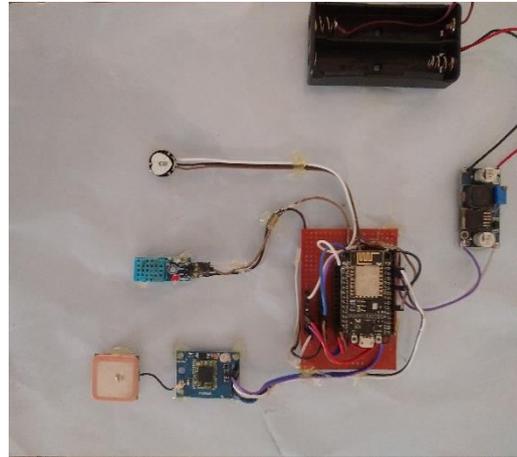


Figure 6.1 : Hardware connection

The figure 6.1 shows the how every hardware are connected to the Node MCU (ESP 8266), and to the power supply

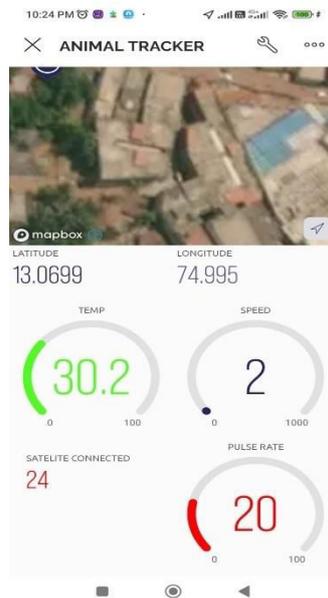


Figure 6.2 : Final Mobile interface(Blynk IOT)

The figure 6.2 shows the Blynk IOT app interface for the humans so that we can monitor the heart pulse rate and temperature, moment speed and the exact location of the cow.

VII. CONCLUSION

The developed system efficiently and accurately monitors behavior of the dairy cows and allows to detect a particular physiological status like location and some health problem This task is supported by IoT infrastructure consisting of hardware devices, the cloud system, and the end-user application.(Blynk IOT)



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