Animal Health Tracker
(Smart collar for Livestock Health & Tracking)

INTRODUCTION

The proper monitoring of livestock is essential for smooth farm management. We designed a smart collar that tracks animal location, measures body temperature to detect early signs of disease, offline data logging ensures records are saved even without internet. This system helps prevent losses, improve health, and ensure animal safety.

OBJECTIVES

1. To provide real time location tracking of livestock.
2. To continuously monitor animal body temperature.
3. To enable offline data logging.
4. To generates early alerts of abnormal behavior.
5. To assist farmers in preventing economic losses.

METHODOLOGY

As per the name suggest out of the project, we used various sensors and modules for making out the design of the smart collar such as GPS module, temperature sensor, and motion sensor. Firstly, we interfaced the sensors with the microcontroller (ESP32/Arduino) for data collection and then added the MicroSD card module for offline logging.

Implementation of temperature sensing, motion detection, GPS tracking, and Blynk software was carried out for real-time monitoring of livestock and to reduce out the losses due to disease or theft.

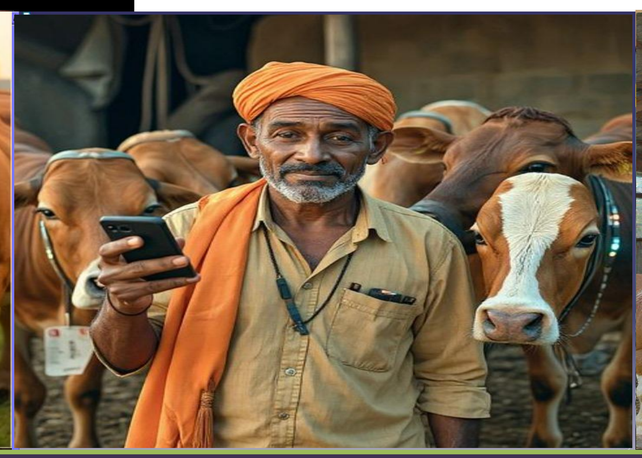
Implemented out the alert system for abnormal behavior and health detection, and also displayed the animal data such as temperature, heart rate, and location on the farmer's mobile using Blynk app, it turned into the major benefit for the farmers.

Components Required-

1. Microcontroller (ESP32)
2. Motion Sensor (MPU6050)
3. Smart Collar Prototype
4. GPS Module (NEO-6M or similar)
5. Micro SD Card Module
6. Temperature Sensor (DHT11)
7. Smart Collar Prototype

RESULTS

Figure and Tables



PROCEDURE

The temperature sensor, motion sensor, and GPS module were connected to the microcontroller for collecting health and location data of livestock. These sensors were chosen to detect disease symptoms, monitor activity, and provide accurate tracking.

A MicroSD card module was added for offline data logging. This ensured that all records remain safe and accessible even in areas with poor or no internet connectivity. Blynk IoT software was configured to show live data such as temperature, heart rate, and GPS location on the farmer's mobile. Notifications were enabled for abnormal readings, making the system farmer-friendly.

Threshold values were set in the microcontroller. If temperature or activity crossed these limits, an early alert was generated for the farmer to take quick action.

Date & Time	Temperature (°C)	Activity Status	GPS Location	Alert Generated
12-09-2025 10:15	38.6	Normal	18.5204, 73.8567	No Alert
12-09-2025 14:40	40.2	Normal	18.5211, 73.8570	High Temp Alert
12-09-2025 16:05	38.9	Low Activity	18.5198, 73.8559	Abnormal Behavior
12-09-2025 20:30	39.0	Normal	Outside Zone	Geo-fence Breach

PROCEDURE

CONCLUSIONS (Learning Outcomes)

In conclusion, the Animal Health Tracker is a practical, affordable, and farmer-friendly innovation. It ensures animal safety, prevents theft, and improves disease management. With further scaling, this solution can contribute greatly to smart farming and rural development

REFERENCES/PUBLICATIONS

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