

**Livestock Tracking and Management:** IoT devices such as GPS trackers are used to monitor the location and movement of livestock. This helps farmers prevent theft, track grazing patterns, and manage herd health.

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# INTRODUCTION

We are making an IoT device which will be helping the farmer to track the livestock, their grazing pattern and help with tracking herd health as well.

## Talking about the benefits :

Real-time location tracking- Farmers can track animals across large grazing areas, reducing time spent manually searching.

Geo-fencing alerts- If an animal leaves a designated area, the system sends an alert – helping prevent theft or loss.

Pattern analysis- GPS data reveals grazing habits, helping farmers rotate pastures more effectively and avoid overgrazing

Behavioral anomalies:- Unusual movement patterns can signal illness, injury, enabling early intervention.

Environmental impact- Efficient grazing reduces soil degradation and supports regenerative practices

Solar Power Plates - Integrated solar panel which will also charge the power unit.





# LITERATURE SURVEY

## Smart Cattle Care: An IoT-Based Monitoring and Management System

Authors: Charu Harish Arora et al.

Source: IJISRT (2024)

- Introduces a sensor-based wearable system for cattle that collects data on location, health, and environmental conditions.
- Key Contributions:
  - Cloud-based analytics and AI for disease prediction and breeding optimization.
  - Automated climate and feeding control.
  - User-friendly dashboard for real-time alerts and insights.

## IoT-Based Animal Tracking and Health Monitoring System

Authors: B. Ashwini et al.

Source: IJRTI (2025)

- Describes a system using Arduino Uno, GPS, temperature sensors, and accelerometers to monitor livestock.
- Key Contributions:
  - Detects abnormal behavior (e.g., prolonged lying) as indicators of illness or injury.
  - Real-time data transmission to cloud and mobile apps.
  - Geofencing alerts for containment breaches.

# OBJECTIVE

Our best aim to achieve is to mainly focus on livestocks and farmer support as :-



Support  
Integration with  
Smart Farming  
Systems

Reduce Labor  
& Manual Effort

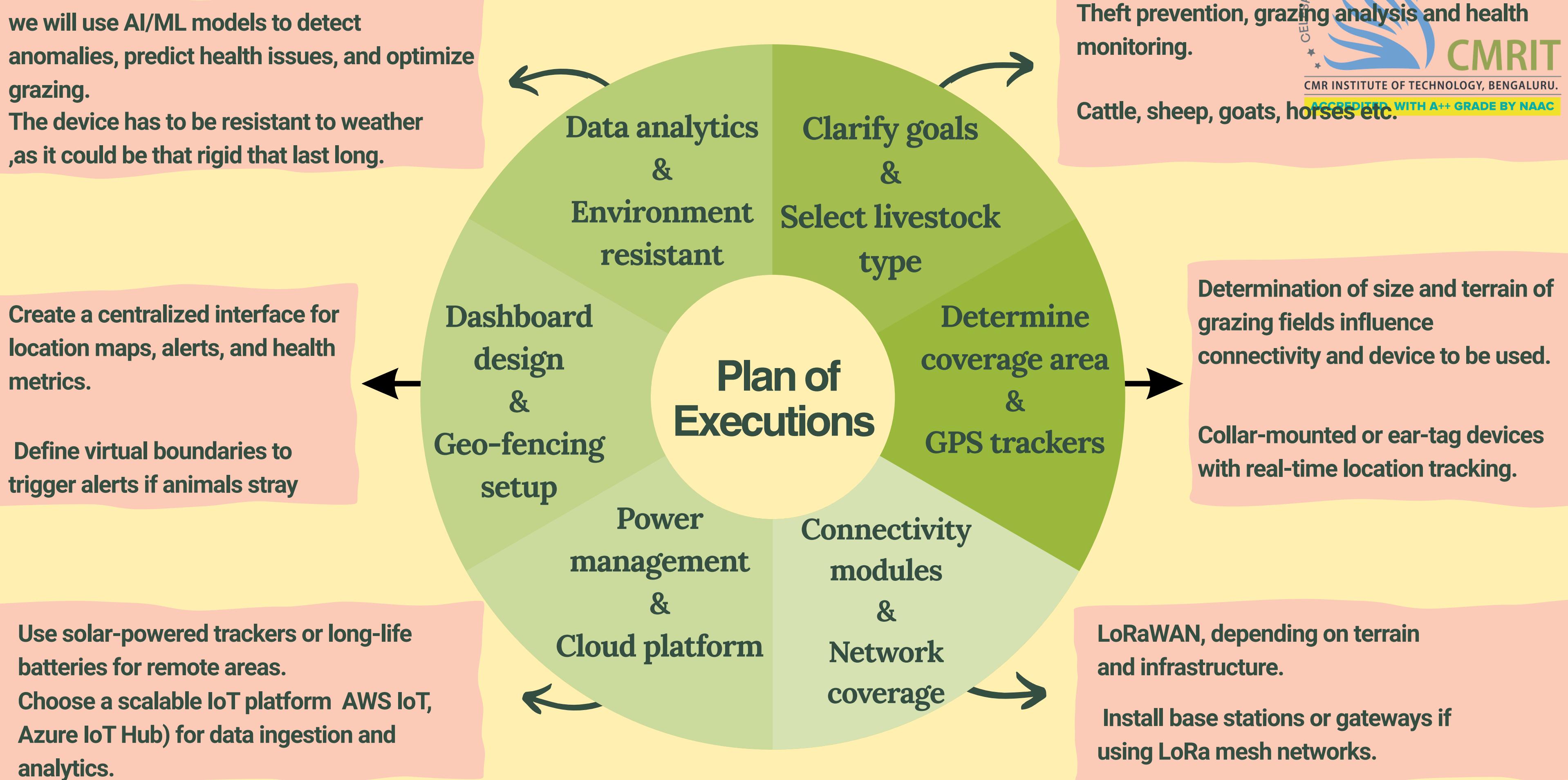
Optimize  
Grazing  
Patterns

Prevent Theft  
& Loss



Small Solar Panels integrated in the belt itself which will supply the power to battery pack, will avoid replacing of battery and belt.

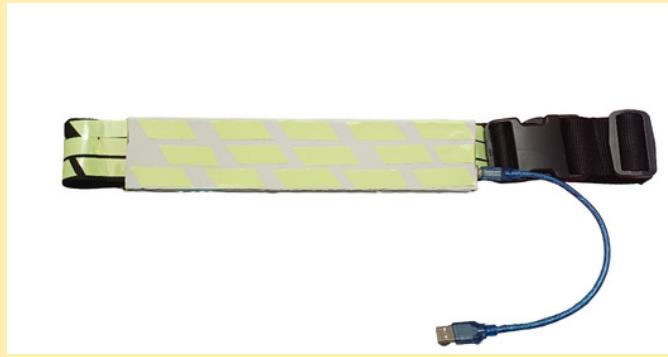
# METHODOLOGY



# CURRENT PROTOTYPE

- Arduino Uno
- GPS Neo 6M
- Adjustable Belt
- Radium Stickers

## Material Used



## Prototype

Currently it is been powered through Arduino to laptop, but we can also power through batteries.

## Power Supply



Tracks location

Adjustable belt

Can easily be spotted at dark

## Features

Not on livestock, but tested in open sky.

## Testing

## EXPERIMENTATION

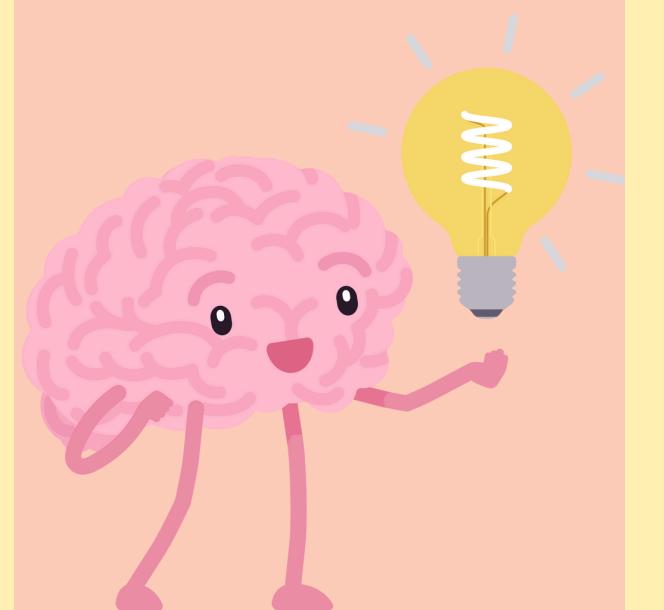
**Location:** A mid-sized open pasture with 20–50 cattle.

**Devices Used:** GPS trackers, Alert triggers, Gateway (LoRaWAN)

30–60 days continuous monitoring,  
Data logged every 5–10 minutes

Solar plates integrated in belt how much battery backup it gives

Normal livestock without IoT devices used for baseline comparison



## ANALYSIS

Grazing zone heatmaps, daily movement range.

Accuracy sufficient for pasture level tracking and thief alert

Geofencing number of geofence breaches detected

Robust enough for rural deployment with livestocks rough usages

User Feedback : Reduced manual labor, easier decision-making via dashboard

# Thank You.

