Ministry Category : Ministry of Environment, Forest and Climate change
Problem Statement : A Real Time Recording and Monitoring of Human activities and animal movements in protected areas.
Team Leader Name : Santhosh Krishna S
Problem code : #MEF8
Current AICTE Application No : 1-3325023702
Title : Certainty Prediction and Management of Wildlife

Smart India Hackathon 2018

Ministry of Environment, Forest and Climate change

Our Idea

•We propose an Integrated Application system which consists of Web applications, Mobile Application and GPS detection and Animal pulse monitoring system to ensure Tracking of Animals

•The System works on Centralized Monitoring and analysation of data(i.e data from GPS locator, Animal Pulse, Ranger’s sightings, climate and etc)

•Our System operates in Three layers

-Central system (Main web Application for Monitoring)

-Animal Tracking System and Mood Detection (GPS /Pulse Sensor)

-Mobile Application (Officer to Update the stats and get predictions and cautions)

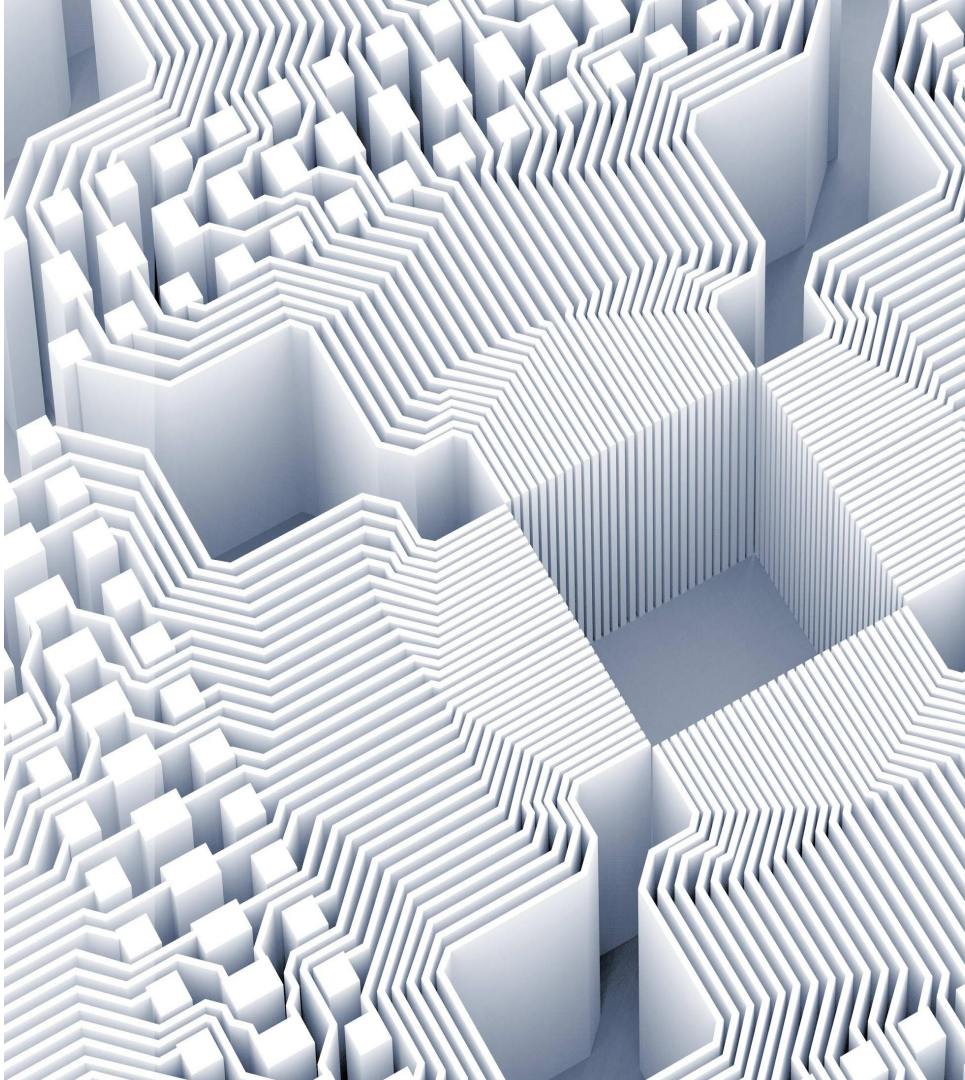
Technology Stack

•**Android Studio** : It is a IDE (Integrated Development Environment) used to create Android Mobile applications

•**Java**: A programming language used to create the Web application and Android mobile application. They can be pre-installed on phones and need not to be recompiled. Java code run on all platforms.

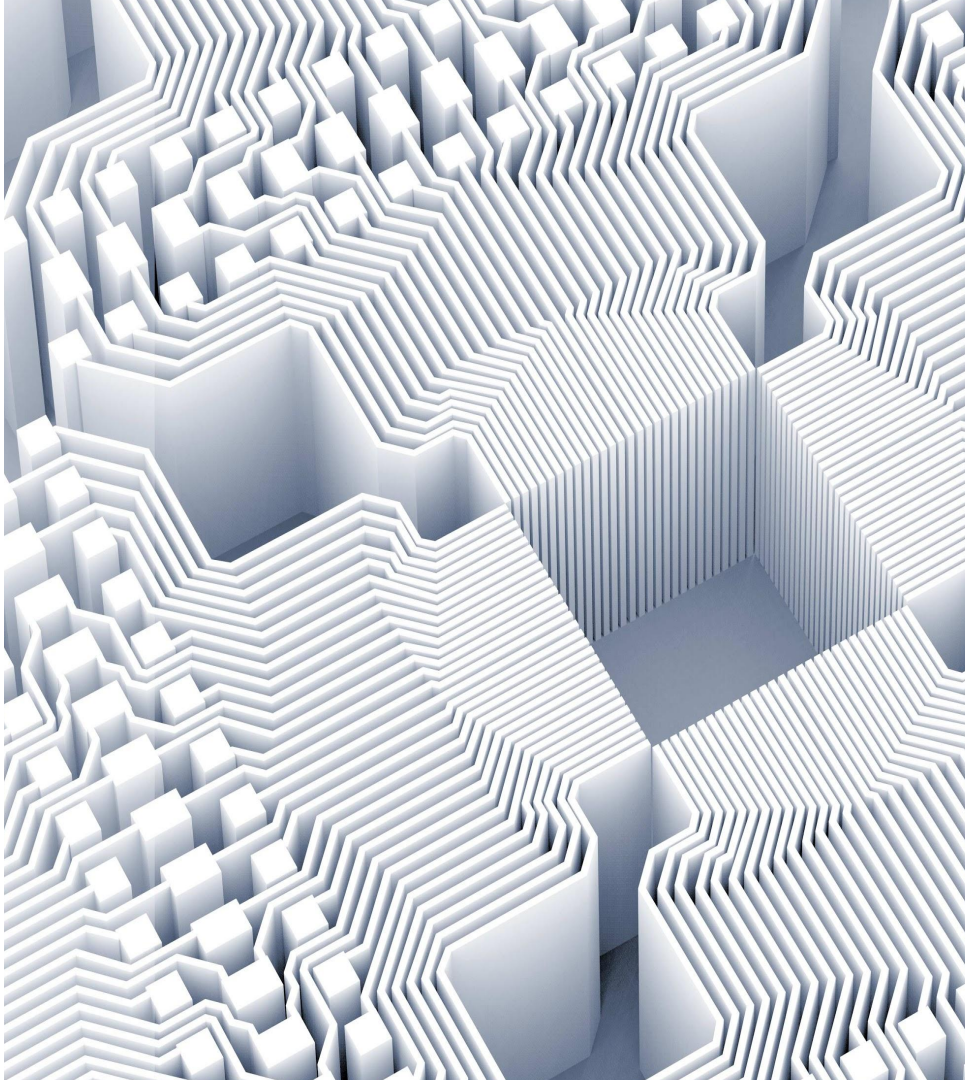
•**Firebase (Prototype)**: An automated online database provided and maintained by Google. It provides detailed analysis and statistics about the stored data.

•**Google Maps**: A Web based service that provides detailed information about geographical regions and sites around the world. In addition to conventional road maps,Google Maps offers aerial and Satellite views of many places

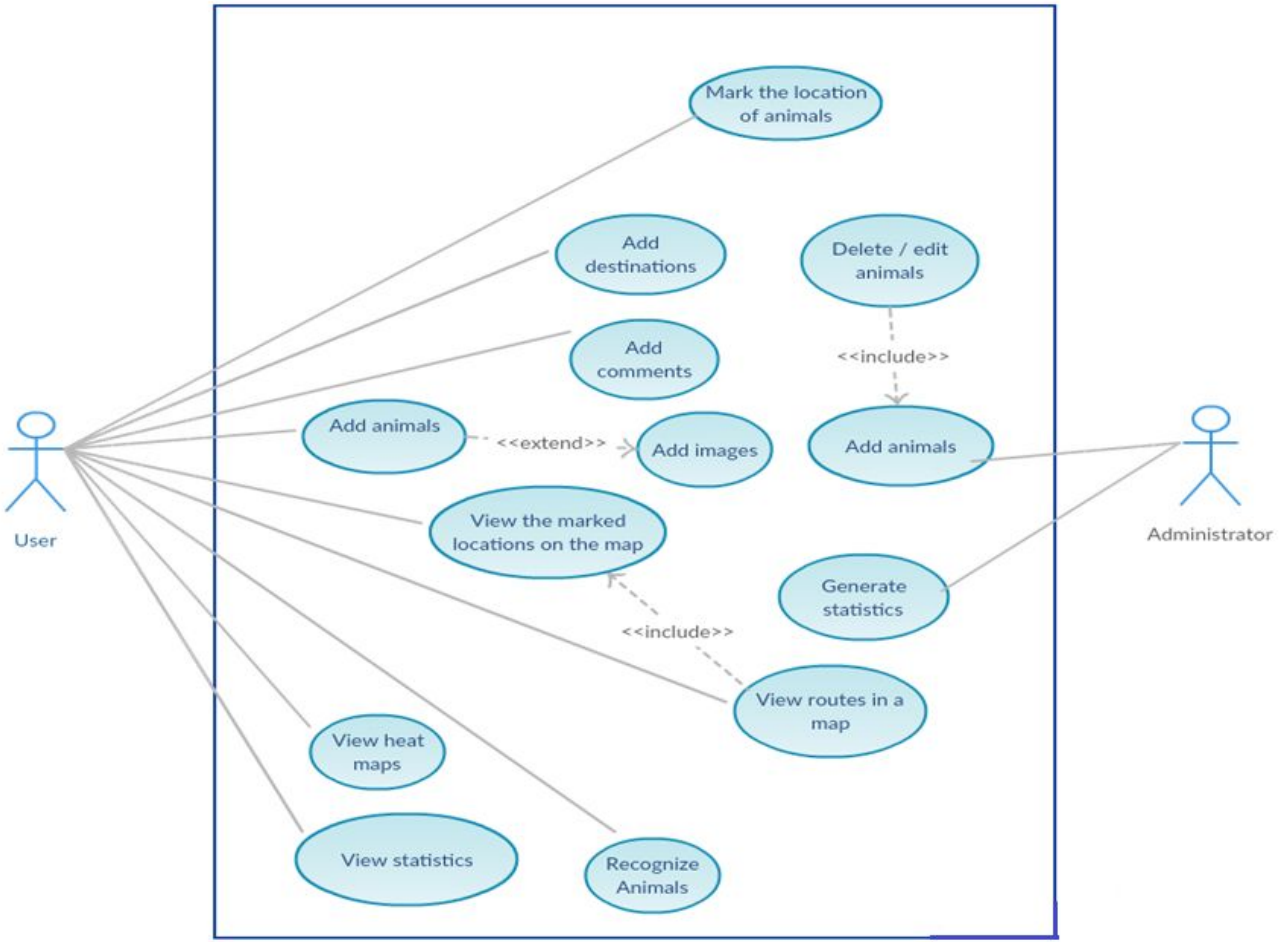


Technology Stack

- **Adafruit Ultimate Gps:** A chip used to fetch the time and location of the target animal.
- **Raspberry pi 3:** A mini computer used in Animal Tracking. Raspberry pi is a series of credit card-sized single-board computers used to promote basic computer technologies and to be used in advanced fields like robotics
- **HTML/CSS :** Front end
- **Bootstrap :** Front-end Framework
- **Javascript :** Client Side scripting



Use Case


Mark the location of animals
Add destinations
Delete / edit animals
Add comments
<<include>>
Add animals
<<extend>>
Add images
Add animals
User
View the marked locations on the map
Administrator
Generate statistics
<<include>>
View routes in a map
View heat maps
View statistics
Recognize Animals

Working of the system

•The system starts when the Forest Ranger starts his surveillance. He updates his sightings of notorious animals via the app with respect to location and time

•The application updates the details associated with that particular animal.

•At the end of Surveillance, A summary is generated and stored.

•The path of the surveillance is marked on Google maps and sightings are listed with respect to the path for better analysis and understanding

•Provided with the GPS devices and pulse monitor, Notorious animals are tracked and updating is held periodically for precautions.

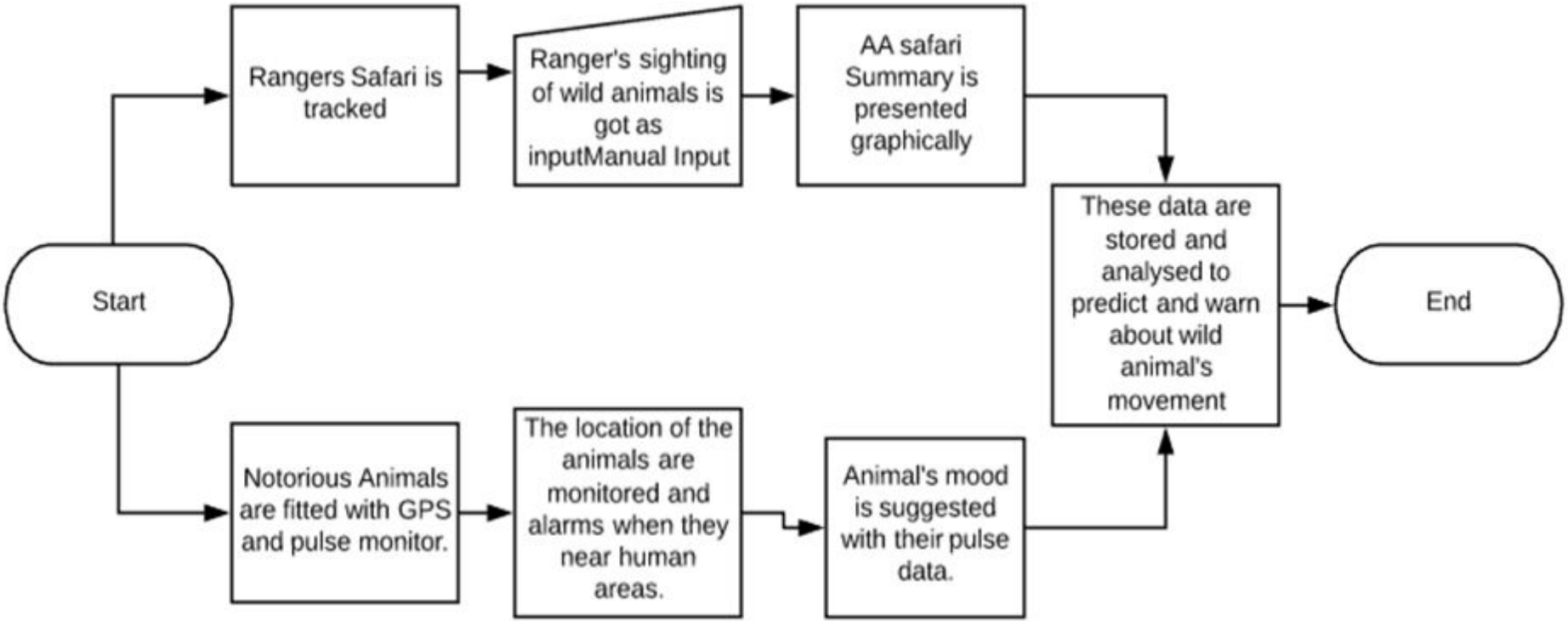
•These GPS devices provide the exact location of the animals so that the people can be alarmed with the mood of the animal(predicted using pulse data) when the they are in a dangerously close radius.

•By frequent updating The application gets smarter in predicting the certainty of a particular animal’s movement in a particular area.

Working of the System (Contd..)

- The Application is integrated with Google Maps to mark the path of the Forest ranger
- After Surveillance the Path is stored as a local map and data for further reference and analysis.
- The pattern and behaviour of animals and their movement and its Exodus is predicted.

Dependencies



Show Stopper

- Mobile signal strength in deep forest may be weak. To overcome this, the updated data is stored in a convenient local memory and uploaded when the network regains stability.
- Phone power may drain so fast as the GPS location is turned on for the entire journey.
- Trackers fitted on few notorious animals must be water proof and needed to be changed often.

Participants from AOT (Ace Of Tech)

Team Lead

- Santhosh Krishna S

Team Members

- Naresh Kumar N B
- Shirly Rachel Christina C
- Agastyaa P
- Balaji Ghandhi P
- Anisha Jose P

THANKYOU