

***Team Name : BotLabs***

***Project Name : Farmer's Friend***

***Ministry Category: Cyient***

***Problem Statement: Real Time Crop Health Monitoring***

***Team Leader Name: Ritwik Joshi***

***Team Leader Email: 15etccs043@technonjr.org***

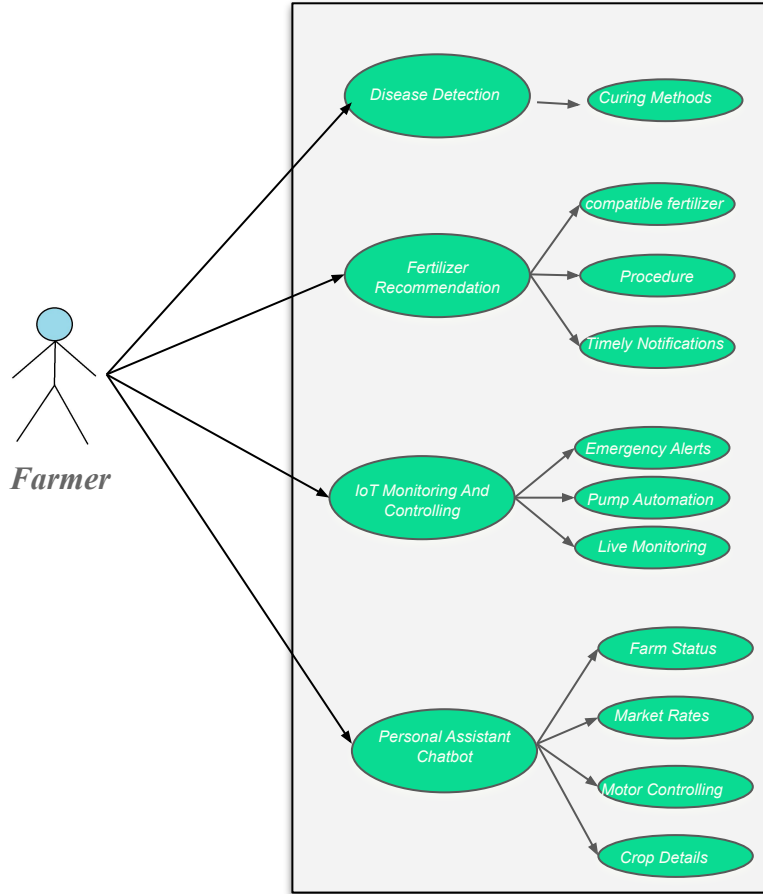
***College AISHE Code: C-25195***

## ***About Solution***

Our project is all about helping farmers using Digital Technologies and make there work easier. Farmer's Friend is a mobile application which uses Artificial Intelligence, Cloud Computing, Data Analysis, IOT, etc. to help farmers.

The main idea behind this application is to facilitate farmers with an application which will help them with Crop Management with Real-Time Crop Status. Using this application farmers can Identify crop diseases using Visual Recognition and Image Processing. The app can also allow them to check the Current Market Rates and M.S.P. of their Crops.

# Use-Case Diagram



# Technology Stack

*The Major Technologies used by this application are:*



*Android*



*PHP*



*IBM Cloud (IBM Watson Cognitive Services)*



*Open Weather Map API*



*TensorFlow (Open Source Machine learning Models)*



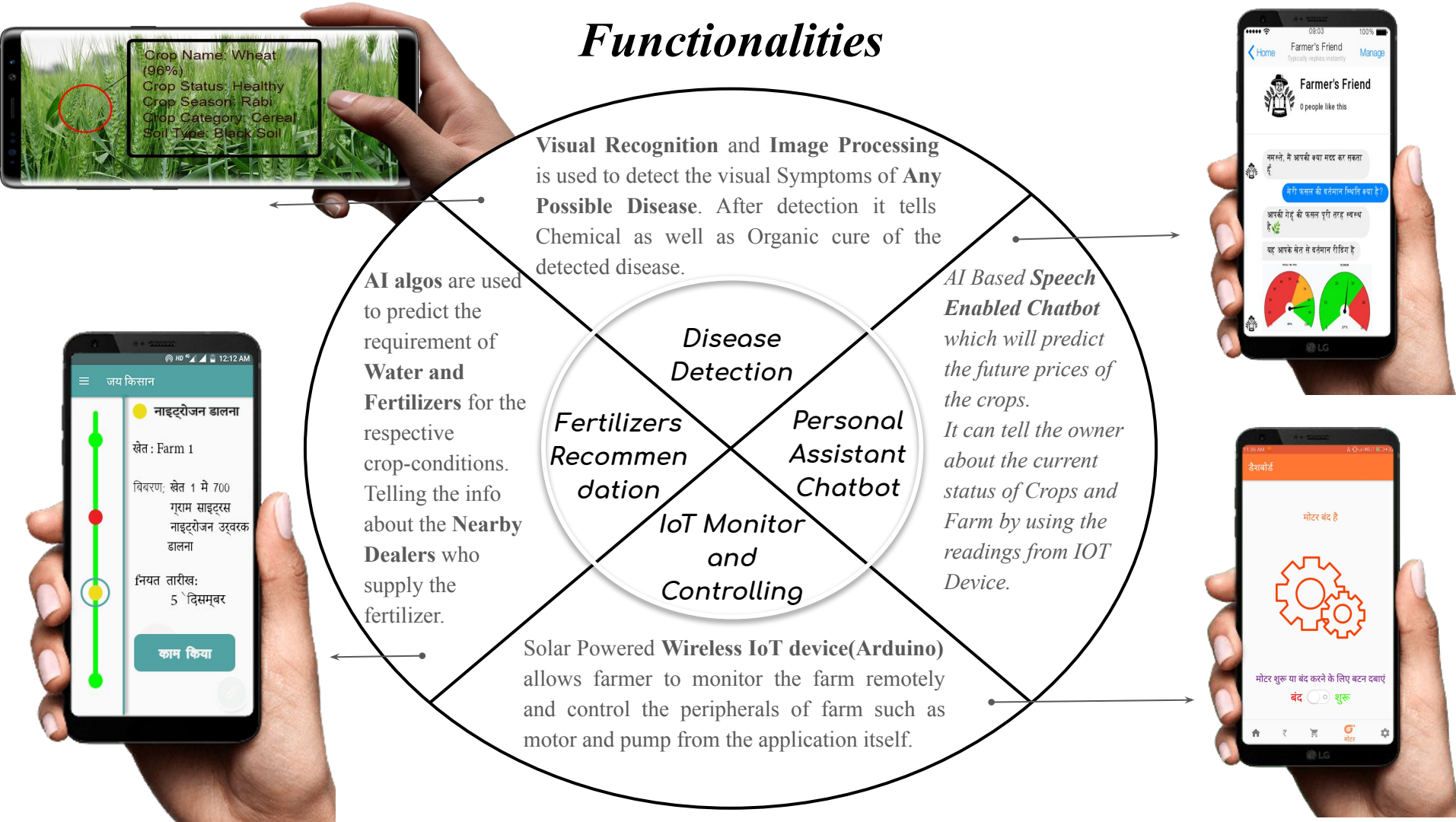
*IoT*



*C/C++ Language*

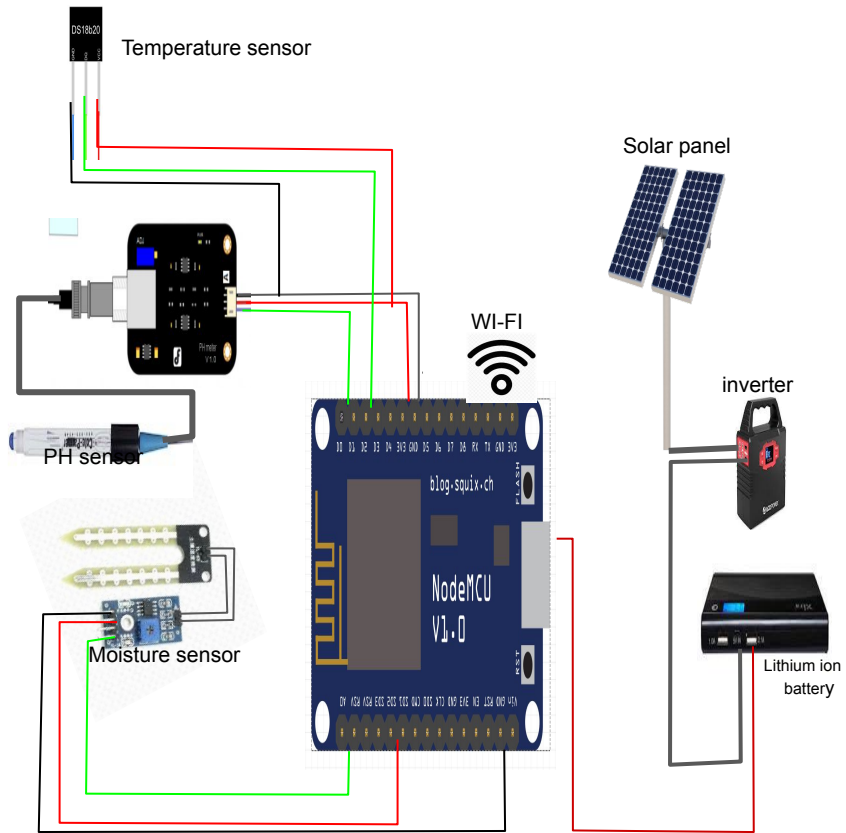
*These are the major technologies. however, there are some more technologies used at the backend to provide additional functionalities.*

# Functionalities

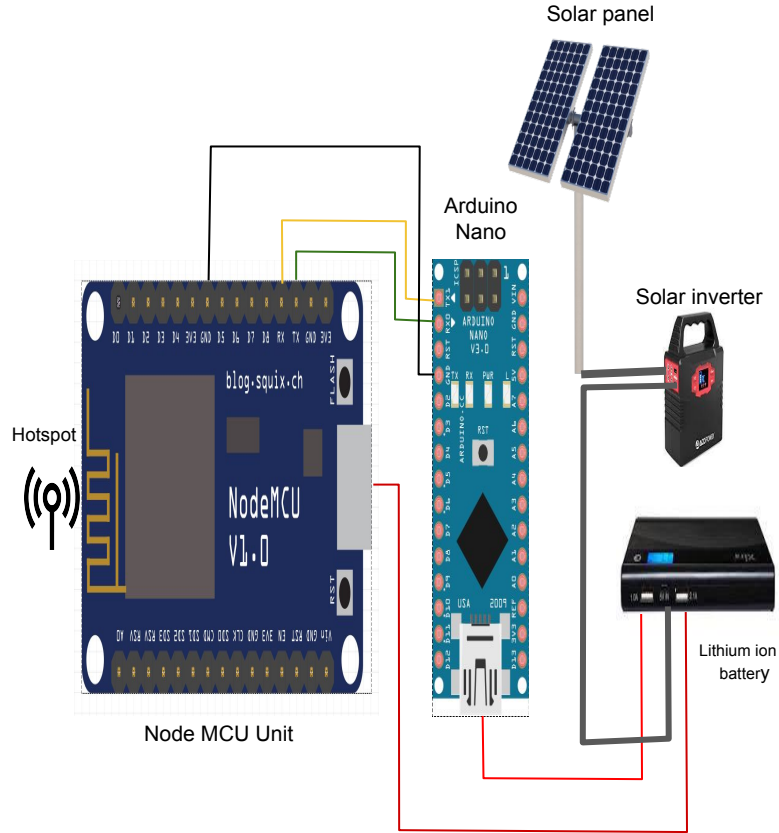


# Hardware Architecture of IOT Device

## Repeater Unit



## Central Hub



# ***FutureScope***

- ***Big-Data Analytics** - We will store the data coming from the sensors into a Database creating a data warehouse.  
We will then analyse this data to provide recommendations to farmers based on predictions which we will derive from the analysed data.*
- ***Drone Monitoring** - We will use automated drones to monitor the farm area and take images to analyze the overall farm health. This add on will be very useful especially for the farmers with large areas of land.*

# ***ShowStopper***

*The following features are the main attractions of our app:*

1. *Extremely User Friendly Interface*
2. ***Multiple Language Support** including Hindi*
3. *ML based Visual Recognition model with more than **90% accuracy***
4. *Usage of additional support by nearest **“krishi seva kendras”** which are run by government*
5. ***Current Market Report** of every crop based on*
6. *Real time data with daily updates.*
7. *Crop Yield estimation and recommendation using Naive Bayes model with accuracy exceeding 80%.*