

Project Design Phase-II Technology Stack (Architecture & Stack)

Date	20 October 2022
Team ID	PNT2022TMID27393
Project Name	IoT Based Smart Crop Protection System for Agriculture
Maximum Marks	4 Marks

Team lead:

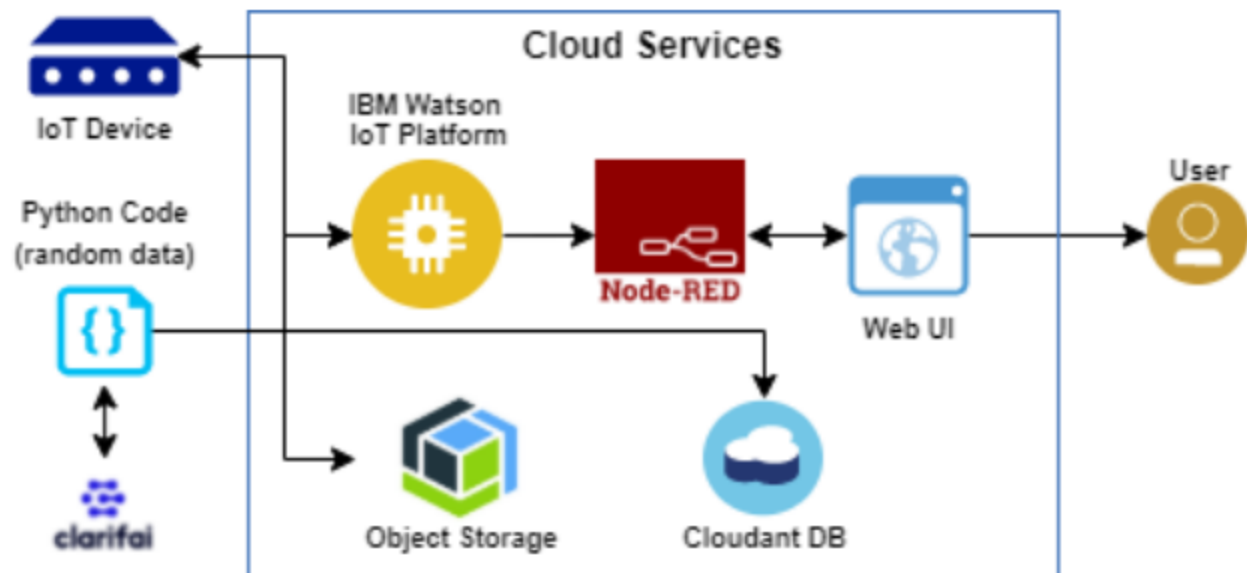
Radha Prabhakaran

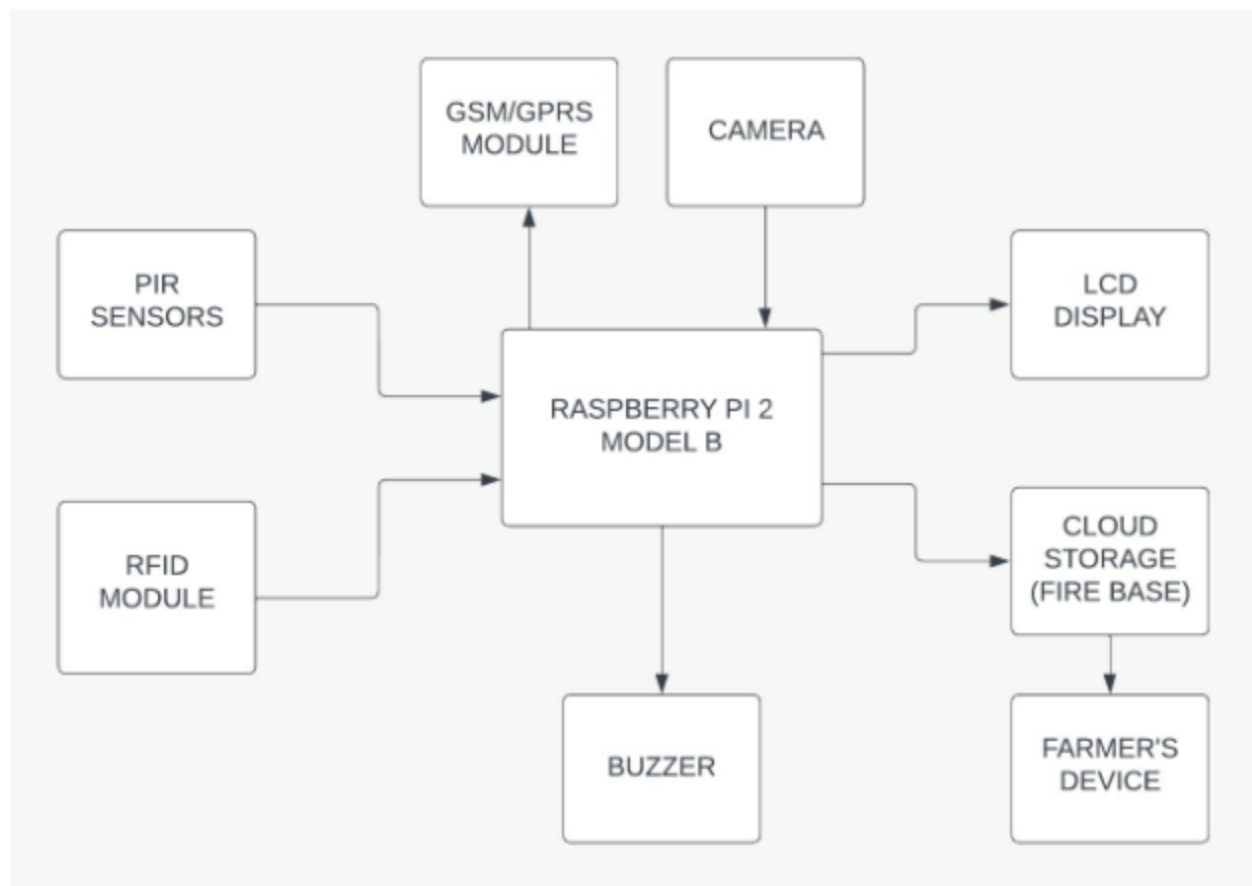
Team Members:

Preethi S
Paarvathi S
Prasanthi B

Technical Architecture:

The architectural diagram is shown below and the technology used is listed down in table 1 and 2





Block Diagram

Description: This project is based on surveillance with an animal ward-off system employed in farmlands in order to prevent crop vandalization by wild animals. In addition to providing protection, this system distinguishes between an intruder and an authorised person using RFID, various PIR sensors are deployed in the area to detect any motion and hence turn ON a camera when movement is detected, thereby providing real-time monitoring.

Table-1:Components & Technologies:

S.No	Components	Description	Technology
1.	Raspberry Pi 2 Model B	The Raspberry Pi is an open-source microcontroller.	C++/ Python
2.	Application Logic-1	Used to capture pictures and videos	Camera
3.	Application Logic-2	After detecting the presence of movement, it emits sound	Buzzer/ Alarm

4.	Cloud Database	Database server on cloud	IBM Watson IoT platform or Firebase
5.	External API - 1	Purpose of external API used in the application to locate the crops	Google maps Geolocation API
6.	External API - 2	A GSM/GPRS Module is used to enable communication between a microcontroller (or a microprocessor) which sends SMS to the farmers device	GSM
7.	External API - 3	To sensors utilise the detection of infrared that is radiated from all objects that emit heat.	PIR sensor
8.	External API - 4	This technology is used to record the presence of an object using radio signals.	RFID sensor module
9.	Machine Learning Model	To displays some basic and vital information	LCD Display
10.	User interface	Mobile App	IoT

Table 2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	SDK that is freely available for the users to use the source code	Raspberry pi 2 Model B
2.	Scalable Architecture	By utilising the sensors, it supports higher workload to work with the IoT	IoT
3.	Security Implementations	The user can alone view the issued data	Authorization and Authentication accessibility
4.	Availability	Web features can be accessed from any remote location	IBM Watson IoT platform
5.	Performance	As the sensors provide accurate data, it is effective in its performance	Python