

IBM – NALAYATHIRAN PROJECT

DOMAIN: INTERNET OF THINGS

**PROBLEM STATEMENT: IOT BASED SMART CROP
PROTECTION SYSTEM FOR AGRICULTURE**

LITERATURE SURVEY

SUBMITTED BY,

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LITERATURE SURVEY NO 1

3. Materials and Methods

3.1 Block Diagram

The block diagram fig contains various sorts of sensors, controllers and actuators for WSN and ARM Cortex-A board which consumes 700mA or 3W power is the foremost component of the system [24]. Various devices like DHT 11 Humidity & Temperature Sensor, PIR sensor, LDR sensor, HC-SR04 Ultrasonic. All the sensors and camera are link-up with ARM Cortex-A. IoT components are proficient around agriculture grounds afterward which will be betrothed entering of client [25].

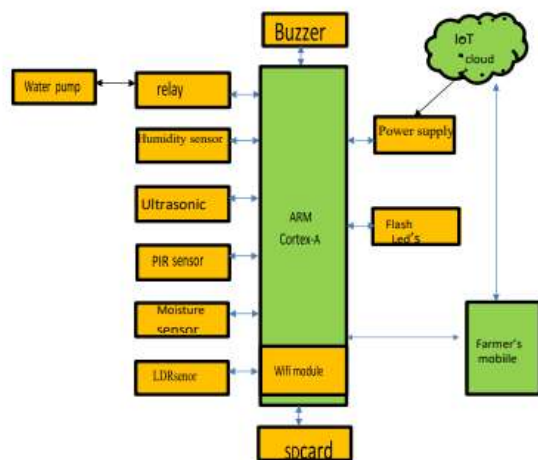


Fig. 2. Hardware block diagram

Link:

https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.researchgate.net/publication/349940582_Implementation_of_IIoT_based_smart_crop_protection_and_irrigation_system&ved=2ahUKEwj87JOJZv6AhVcSWwGHdcABj4QFnoECA8QAQ&usg=AOvVaw35GWBbsiU3dqsc_4TBT6fZ

LITERATURE SURVEY NO 2

3. PROPOSED WORK

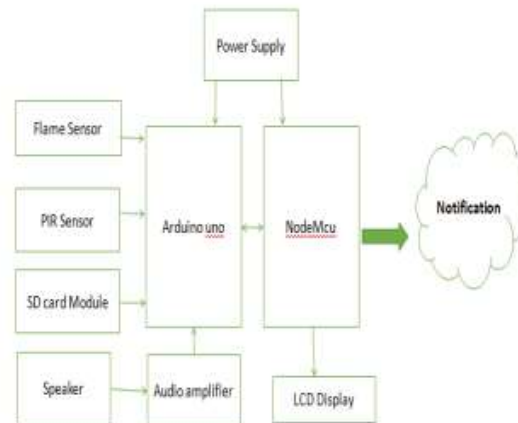


Fig 3.1: Block diagram of purpose system.

Our project is smart crop protection system Using Arduino. This project is helpful for the farmer to protect his farm from animals and unknown person near to his farm. We are use PIR sensors for sensing the movement at the boarder of farm and that data will be given to Arduino after processing it can be display on lcd display. But we it is not sufficient to protect the farm hence we can add dog sounds via speaker so that the animals are not come inside the faram.

We are interface nodemcu for message of alert. When any movement detect then we have a message on our register Android phone. This project is fully works on free energy i.e. solar energy is store at battery. The battery is connected to our system hence we don't require to give another power supply.

We have added new feature to protect our farm by another issue. When the fire on our farm then we have received a fire message. So this is very protective and costly project. Hence because of our project the farmer can check the security and get immediate action.

Link:

<https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.irjet.net/archives/V8/i2/IRJET-V8I2317.pdf&ved=2ahUKEwj87JOJZv6AhVcSWwGHdcABj4QFnoECBcQAQ&usg=AOvVaw2skGELzn-dr6aD1Cli4C4y>

LITERATURE SURVEY NO 3

5.1 Block Diagram

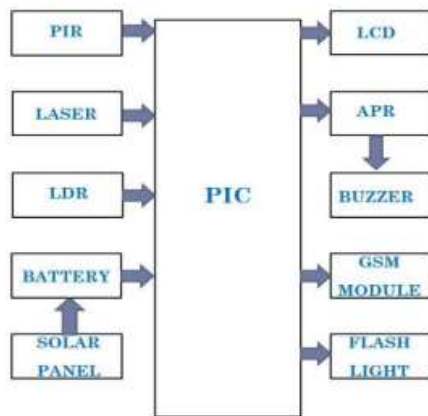


Fig.5. Block diagram of control panel.

In our proposed work, when the animal enters into the farm area. The LDR's placed in the vertical positions help us to detect the size of the animal whereas PIR sensors are used to detect position of the animal. Immediately, the APR board will be on, and the sound is played to divert the animal. During night time the flash light will be on and the message will be sent to the farmer. The LCD display the presence of animal and LDR readings. The GSM module is used for sending a message to warn the farmer about the intrusion.



Fig.6. Working

Link:

https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.ijlesjournal.org/2021/volume-4%2520issue-4/ijles-v4i4p101.pdf&ved=2ahUKEwj87JOJZv6AhVcSWwGHdcABj4QFnoECD0QAQ&usg=AOvVaw1ziT4_hbrs7IX1zqOtBVCJ

LITERATURE SURVEY NO 4

VI.OBJECTIVE

The main objective of this proposed project is to help farmers protect their crops from animals and fire. PIR sensor detects the animal while crossing it, by sensing the movement of the animal and alerts the owner of the field about the situation created, smoke detector detects the smoke caused by fire and soil moisture sensor which helps them to track the volumetric water content in soil.

V. PROPOSED SYSTEM

In the proposed system, crop monitoring is done where sensors are used to collect information from the agricultural field by our proposed work, PIR, Smoke sensor and GSM is used along with soil moisture sensor providing farmers more information about the water content present in the soil. When animals approach close to the PIR sensor, it detects the movement. After getting the initial input signal from the warm body, it is passed for further processing, then it will be passed on to the microcontroller. Then the system will be activated, immediately the buzzer goes on, and simultaneously it sends an SMS to the owner. Microcontroller (Arduino UNO) is used for reading the inputs from PIR, Soil Moisture Sensor and Smoke sensor. The GSM module is used for sending SMS to farmer when movement or smoke is detected.



Fig.1 Block Diagram of Smart Crop Protection System

Link:

https://www.google.com/url?sa=t&source=web&rct=j&url=http://www.ijcrt.org/papers/IJCRT0020033.pdf&ved=2ahUKEwj87JOJIZv6AhVcSWwGHdcABj4QFnoECDgQAQ&usg=AOvVaw0I-RLQ-hEZ8ln2jIb_adG6