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Sri Adichunchanagiri Shikshana Trust

SJC INSTITUTE OF TECHNOLOGY

Affiliated to Visvesvaraya Technological University, Belagavi & Approved byAICTE, New Delhi
(NBA, NAAC Accredited and ISO 9001: 2015 Certified)
Chickballapur, 562 101, KARNATAKA

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

PROJECT TITLE: Mobile Vehicle for Crop Nourishing Framework Using Arduino

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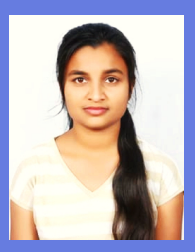


GUIDE: Prof. Anil Kumar R

PROBLEM STATEMENT

The traditional agriculture and allied sector cannot meet the requirements of modern agriculture which requires high-yield, high quality and efficient output. Thus, it is very important to turn towards modernization of existing methods and using the information technology and data over a certain period to predict the best possible productivity and crop suitable on the very particular land. Some of the sample problem statements related to Agriculture & allied sectors where IoT application will be beneficial are given below.
Overuse of pesticides and fertilizers in agricultural fields leads to destruction of the crop as well as reduces the efficiency of the field increasing the soil vulnerability toward pest. Exported / supplied stocks are rejected by the customers due to undesired quality.

MODEL

OBJECTIVES

The main objective of this project is to design a portable vehicle where it can feed prerequisites to the plants on time to time basis based on crop requirements. Below are the steps to achieve our objective:
Construction of model which makes use of solar panel to generate electricity.
Building up the electrical part results in supply of water, pesticides, manure separately via solenoid values using relay module.
Motor driver used in this model helps in the movement of vehicle automatically from one plant to another based on the crop requirement and fixed time delay.
Encoding the program with appropriate software results in the detection of all parameters.

WORKING

The automatic crop feeding system with independent power supply plays a very vital role in today's forwarding agricultural technologies. By using the automatic crop feeding vehicle system, which reduces the farmers manual handling power and using the supply from the solar will reduce the power from the supply. So, farmers cannot wait for the power in agricultural land.
This prototype is designed in such a way that it feeds water, pesticides, manure automatically in the required amount to the plants(choose ones). Solar panel used here is used to trap the sunlight which in turn is stored as an electrical energy in the battery. This electrical energy is used to power up the entire module. A four channel relay is used in this module in which the first channel is used for the functionality of water supply, the second for the pesticides and the third one for the manure.
The IR sensor used in this module is used to detect the obstacle which comes on its way. When the IR sensor senses the obstacle which is termed as plants in this prototype, the vehicle stops it's movement and starts its functionalities like pumping of water, pesticides and manure to the plants based on the set time delay.