Smart Phone Operated Multipurpose Agricultural Robot

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Abstract: *This robotic vehicle is an agricultural machine of a considerable power and great soil clearing capacity. This multipurpose system gives an advance method to sow, POW, water and cut the crops with minimum man power and labour making it an efficient vehicle. The machine will cultivate the farm by considering particular rows and specific column at fixed distance depending on crop. Moreover the vehicle can be controlled through Bluetooth medium using a Android smart phone. The whole process calculation, processing, monitoring are designed with motors & components interfaced with microcontroller. The primary goal in creating this robot was to simply make farming easier for farmers in the future. The fields of robotics and large-scale agriculture have seen several significant breakthroughs in the current situation. Both technologies are used in this essay. The DTMF approach was employed in this study (Dual Tone Multi Frequency). A cell phone is used to manage our robot, allowing us to make it converse widely and across great distances. This will enable the farmer to easily manage his agricultural tasks from a distance without having to enter the field.*

Keywords: Infrared Signals, PIR sensor, Obstacle sensor, Radio Frequency Transmitter and Receiver

I. INTRODUCTION

The main innovation in the rise of human civilisation was agriculture. Over the past century, new technology and the growth of international agricultural markets have resulted in a dramatic change in agricultural practises. This has also resulted in advances in agricultural technology. The field of technology known as robotics focuses on the creation, use, and application of robots as well as the development of computer systems for their control, sensory feedback, and information processing. Even while a given rover may not appear much like a human or work in a human-like way, its design frequently incorporates agricultural endeavours. . These types of intelligent systems having robust and feasible model with a number of integrated functionalities is the demand of future in every field of technology, for the betterment of the society.

II. PROPOSED WORK

The Arduino Mega 2560 is a microcontroller board based on the at mega2560. It connects to a computer with a USB cable it with a AC-to-DC adapter to get started. The amount of water in the soil is measured by soil moisture sensors. These sensors can either be fixed, like handheld probes. soil moisture probes may monitor soil moisture at many sites, which are installed in the field at locations.

III. FIGURES
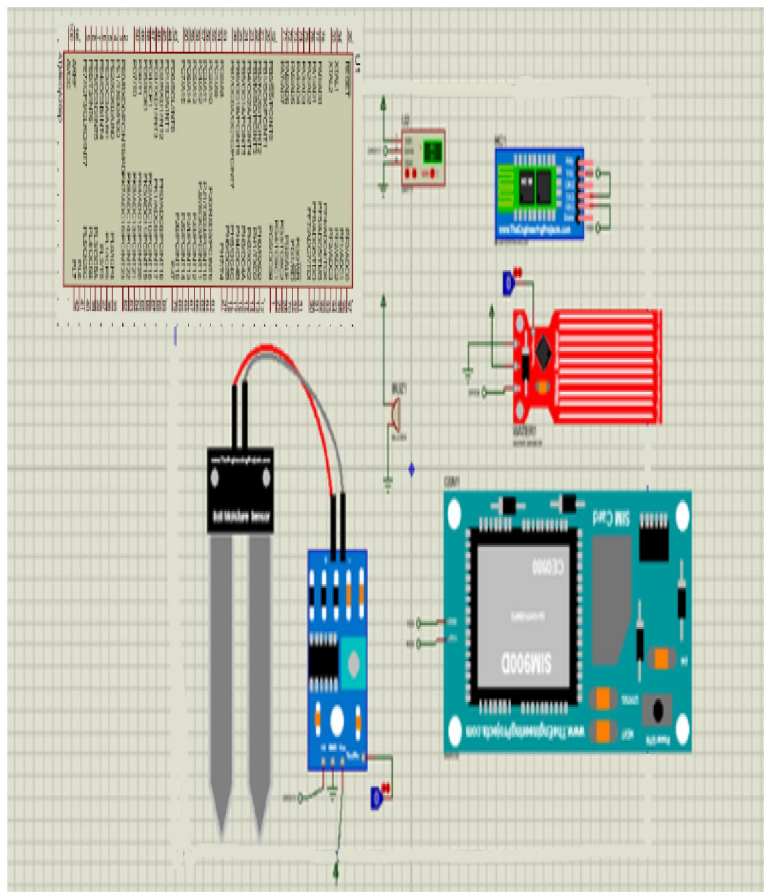
Data Flow Diagram
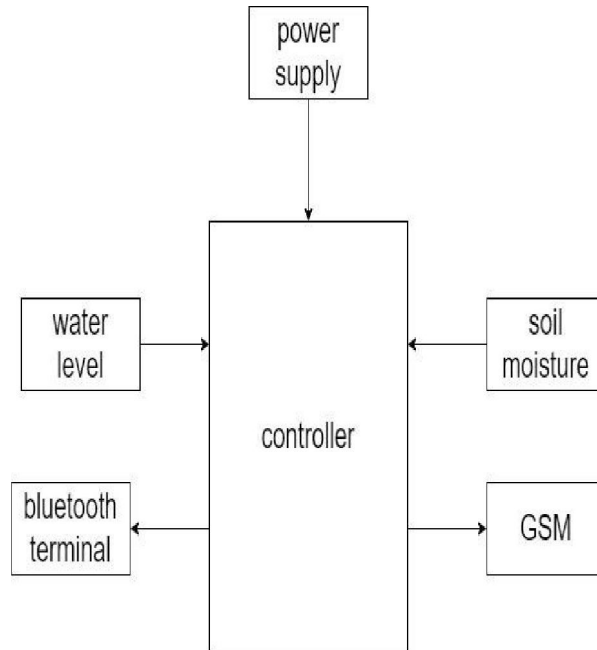
Circuit Diagram

Fig.2

IV. HARDWARE AND SOFTWARE REQUIREMENTS

Hardware Requirements:

- System : Intel I5 Processor.
- Hard Disk : 40 GB.
- Monitor : 15.
- Controller : PIC16F877A

Software Requirements:

- Operating system : Windows 10.
- Coding Language : kotlin
- IDE : Android studio
- Database : Firebase

V. APPLICATIONS

- Soil moisture monitoring.
- IoT irrigation control
- Soil nutrient analysis
- Solar radiation
- Weather stations

VI. CONCLUSION

The challenge of farmers farming their land in every season, no matter what the weather is, has been overcome by the development of this robotic vehicle with its multi-tasking agricultural features. The weather that day has a wide range, just like this machine. can be managed with this from anywhere in the world. Technology DTMF. This robot's key benefit is that it that it enables farmers to make their labour

VII. ACKNOWLEDGEMENT

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