Agriculture *Field Betterment Using Solar System And Microcontroller*

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Abstract - *In digital India technology plays a vital role which include Agro-technology which the method of appling the technology innovation occurring in daily life which can be apply to agriculture sector causes to improves the efficiency of the produced and can help to developed better seed sowing machine to help the agricultural field. It can be reduced the amount of time of work spend on one crop and total cost, labour effects. Hence in this project deals with the desiging and fabrication of better seed sowing machine which is available to the farmer at a cheper rate an it helps to sow the seed in the farm simultaneously. To developed the agriculture needs, we must find different ways to improve efficiency. This paper approaches to utilize available information technology which is the more effective machine to reduce the target energy inputs in more innovatives ways in the past.*

Key Words: Portable Motor, Solar Panel, Battery, Microcontroller, IC, Hopper Plate, Bluetooth model, sensors.

1. INTRODUCTION

In India agriculture was the key development in human civilization causes a remarkable changes in various agriculture practice has occurred over the past with new technology and development. As the major occupation of the Indian people is agriculture, the environmental impact of agriculture with the rising demand to industry is very much in focus. Currently in most of the countries, the skilled man power in agriculture sector is absent and that effect the growth of developing countries .Thus the farmer have to implement the various technology and techniques to overcome this problem by doing automation in various sector. As 70% of people depend on agriculture so we need to study on improving the agriculture technique.

Our work included the advantages of automation, obstacles avoidance and smooth controlling power by a cell phone. This help farmer to communicate from very long distance without disturbances in network connection which is providing over a wide range. Due to this wider range,the coverage area of this survice is large so there is no interference with other controller. Due to this advantages the system will be powerful and more flexible which will offer survices at any time and formed where the technology being applied. In old machine RF curcuit is used which has many drowbacks and can be overcome by the cell phone. Now a days automation plays a vital role like high yields, less production cost, and can reduce man power. So this project deals with various advantages with automatic seed sowing machine which can be controlled manually too. This machine is mainly focused on seed sowing.

2. Design of seed sowing machine

Block diagram consist of main components :

1. Battery
2. Solar panel
3. Driller
4. PCB
5. Microcontroller
6. Isolator
7. MOSFET

8. DC Gear motor

9. Buzzer

10. Bluetooth

11. Resistor, Capacitor, Transistor

12. Sensors

13.

Fig -1: Solar panel

solar panel are the basic need of the electrical. We can not live without electricity or atleast we can reduce the carbon footprint of our home. We can make it by solar panel.solar panel consist of photovoltaic cell, which convert into electricity. This electricity can be utilize to our home.

3. Experimental Setup
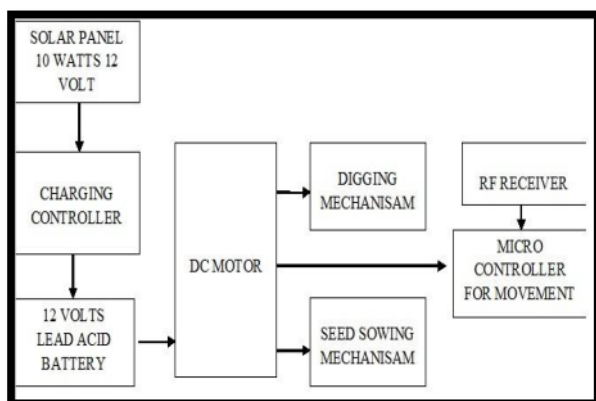
Fig -2: Experimental Setup

4. Block Diagram
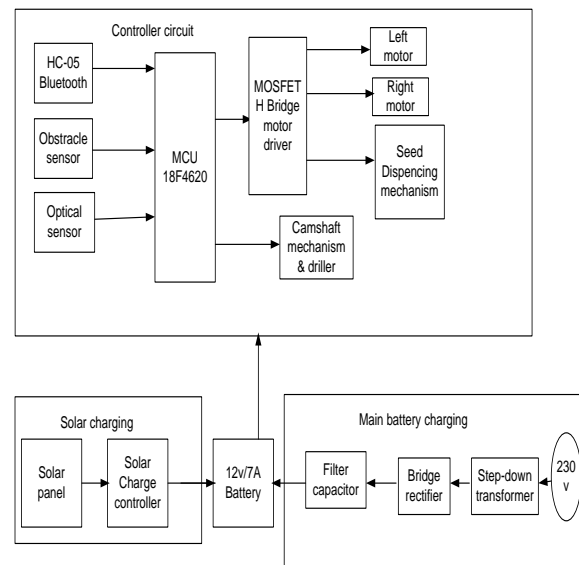
Fig -3: Block diagram

A. Chassis

Its construction mainly based on internal framework on which the body is mounted. The material used in chasis is Iron size of chasis which may be of 22inch x 8inch x 36inch.The example is under the part of a motor vehicle,consisting of frame.

B. PCB

A printed curcuit board(PCB)consist of electrical component connected to it using conductive sheets laminated into a non-conductive substrate and mechanically supported. PCB consist of many layer such as one copper layer, two copper layer, multi layer. Components are connected to PCB by sholdering through the holes.

C. Drill

The cutting tools, drills bits is used to create holes which is of circular cross section. The cutting edge of the drill bits are at one end whereas the shank is at the other. It usually connected to a rotating mechanism which rotates them and provide torque as well as axial force to create the holes.

D. Battery

Battery is of 12V,7.5 AH is a sealed lead acid battery.IT is a device consisting of one or more electrochemical cells that convert stored chemical energy into electrical energy. It consist of positive and negative teminal basically consist of anode and cathode.

E. Electric Motor

Electrical motor is the vital componence for electricity, which convert electrical energy into mechanical energy. It operates on a principle of a Ampere's law.

F. MOSFET

The MOSFET is use as the current and voltage controlled device whose input is the output of microcontroller and the output of MOSFET is given to left motor, right motor and seed dispencing mechanism

5. Model

This machine is specially works on solar energy. Also the battery of 12V, 9AH is connected in another way ,which then gives a necessary power to a whole system of machine. A solar panel consist of photovoltaic cell convert heat to electrical energy which is used to charge the stored battery. This power which is then transmitted to the motor wheel through drive. In this project ,an attempt is made to make together the mechanical and electrical system to share their power efficiently. Basically the objective of this project is to sow a seed at desired depth and seed to seed spacing which then cover with soil. Machine consist of row to row and seed to seed spacing, speed rate and depth is vary from crop to crop. It is used for different agro-climatic condition to achieve optimum yields, generally for cotton seed. The electric battery which is used is consist of electrochemical cell that convert stored chemical energy an converted into electrical energy. The solar energy stored in battery is utilized to operate whole syatem. The 18F4620 microcontrollar is 40 pin IC which control the basic

component and motor automatically. Now the Hall ,optical and obstacle sensors are used for different purposes. Such as the hall sensor are used to count the one rotation of wheel. The obstracle sensor are used to detect the obstracle in moving path and the optical sensor are used to count the seed. Where as the MOSFET is use as the current and voltage controlled device whose input is the output of microcontroller and the output of MOSFET is given to left motor, right motor and seed dispencing mechanism. The below model is same as the present existing model.
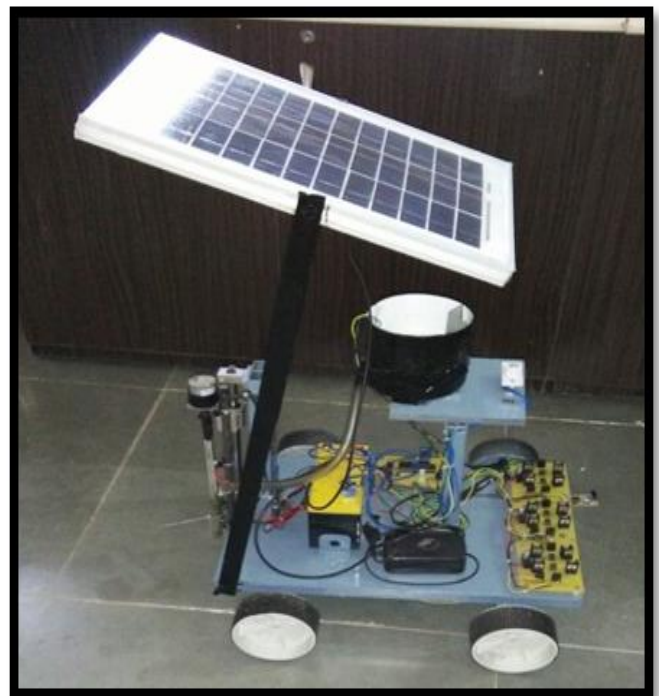
Fig -4: Model

FUTURE SCOPE

1. Addition of multy hopper can be attached side by side for sowing the large farm.
2. The work may be done by extending the range of Bluetooth for communication in large farm.
3. The connecting the water sprinkler it can be use in large form.

CONCLUSION

We can conclude that our machine has many advantages our the existing machine such as follows as it has low cost,

mode of operation is very simple etc. By this machine we can vary depth of seed plantation for proper nutrients. This machine does not require proper skills for operating and can be easy to transferred. In the conventional method more labour is required and still the accuracy is less. By using this system, the accuracy will be increase with less man power and time reqired will be less. This is more efficient than the present exiting machines.

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