RAIN SENSOR AUTOMATICALLY CONTROLLED DRYING SHED FOR CROP YIELD FARMERS

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ABSTRACT: Now a day's technology is running with time, it completely occupied the life style of human beings. Even though there is such an importance for technology in our routine life there are even people whose life styles are very far to this well-known term technology. So it is our responsibility to design few reliable systems which can be even efficiently used by them, farmers. The farmer who toil and does hard work to produce the crop suffers a lot at the end. The factors include unexpected rains when yielded crop is dried before selling, which will completely destroy the crop yield or make the yield second grade. To avoid such condition, automatic rain protected drying sheds are to be developed.

In this project, we propose a system in which the rains are detected automatically and protective shield is wrapped on the rooftop sensor an intelligent microcontroller and a DC motor are employed. The rain sensor of such drying shed which protect the crop against rain and getting wet. To automate this task, a rain senses the rain and data is passed to the microcontroller. The microcontroller processes the data and activates the DC motor control circuit and a protective wrapper is wrapped on the roof top.

INTRODUCTION

HARDWARE:

1. MICRO CONTROLLER
2. DC MOTOR
3. RAIN SENSOR

SOFTWARE:

1. EMBEDDED 'KEIL C' LANGUAGE

HARDWARE

MICRO CONTROLLER

Microprocessors and microcontrollers are used in embedded system products. An embedded product uses a microprocessor (or microcontroller) to do one task and one task only.

A microcontroller is a computer on a single chip .Micro suggest that the device is small and controller tells that the device is used to control objects, process or events**.** Microcontroller is a highly integrated chip that contains all the devices comprising a computer. Typically this includes a CPU, RAM, Input/ Output ports, timers, interrupts. So microcontroller is also called as "true computer on a chip". Unlike a general purpose computer which also includes all of these devices. A microcontroller is designed for a very specific task to control a particular system. In the concerned project 8052 microcontroller is used. Here microcontroller used is AT89C52, which is manufactured by ATMEL laboratories.

D.C MOTOR

We are using 12 volts D.c motor to run the sheds. D.c motor is connected to the shafts of the shed using gears so that moving of shed takes place. The power supply for the D.c motor is given through the step down transformer. We are using two D.c motors.

RAIN SENSOR

A rain sensor is a device which is activated by rainfall. . There are two main applications for rain sensors. The first is a water conservation device connected to an automatic irrigation system that causes the system to shut down in the event of rainfall. The second is a device used to protect the interior of an automobile from rain and to support the automatic mode of windscreen wipers.

SOFTWARE

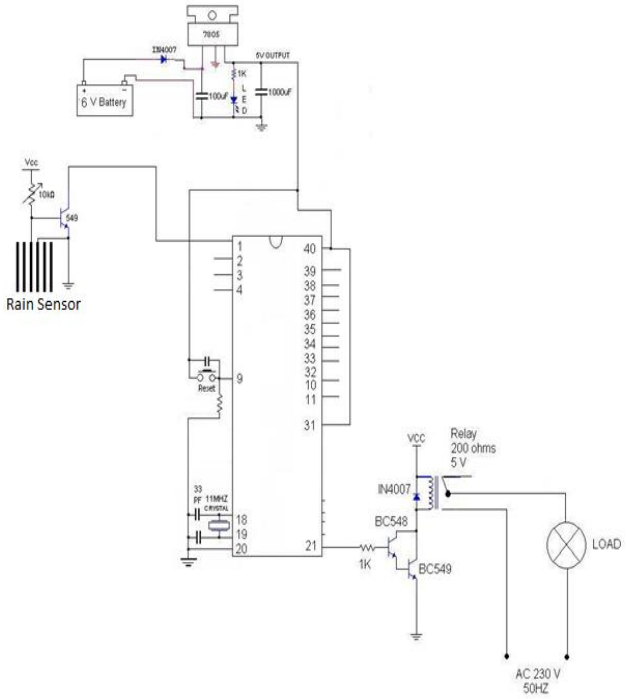
KEIL SOFTWARE

Keil development tools for the 8051 Microcontroller Architecture support every level of software developer from the professional applications.

Source files are created by the µVision IDE and are passed to the C51 Compiler or A51 Macro Assembler. The compiler and assembler process source files and create replaceable object files. The Keil C51 Compiler is a full ANSI implementation of the C programming language that supports all standard features of the C language. In addition, numerous features for direct support of the 8051 architecture have been added.

WORKING DESCRIPTION

BLOCK DIAGRAM OF PROJECT



WORKING

In the crop yield drying process, there is utter necessity to sense the excess moisture or rain is very important else the hard yarned crop yield will be destroyed which is a tremendous loss to the former. To avoid this condition, sensing the parameters are done through the moisture sensor or rain sensor. The sensed data is sent to the microcontroller. Microcontroller AT89S52 is an intelligent controller which is pre-programmed according to the requirement. The data collected from the sensor is processed and relevant action is taken. The microcontroller is instructed to control the DC motor which is used to cover the drying shed. As soon as excess moisture or rain is detected, the motor is activated by the microcontroller and the protective cover is covered on the rooftop of the drying shed.

The Micro controller (AT89S52) is a low power; high performance CMOS 8-bit micro controller with 4K bytes of Flash programmable and erasable read only memory (PEROM). The on-chip Flash allows the program memory to be

reprogrammed in-system or by a conventional non-volatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel AT89S52 is a powerful microcomputer, which provides a highly flexible and cost-effective solution to many embedded control applications. By using this controller the data inputs from the smart card is passed to the parallel port of the pc and accordingly the software responds. The IDE for writing the embedded program used is KEI L software.

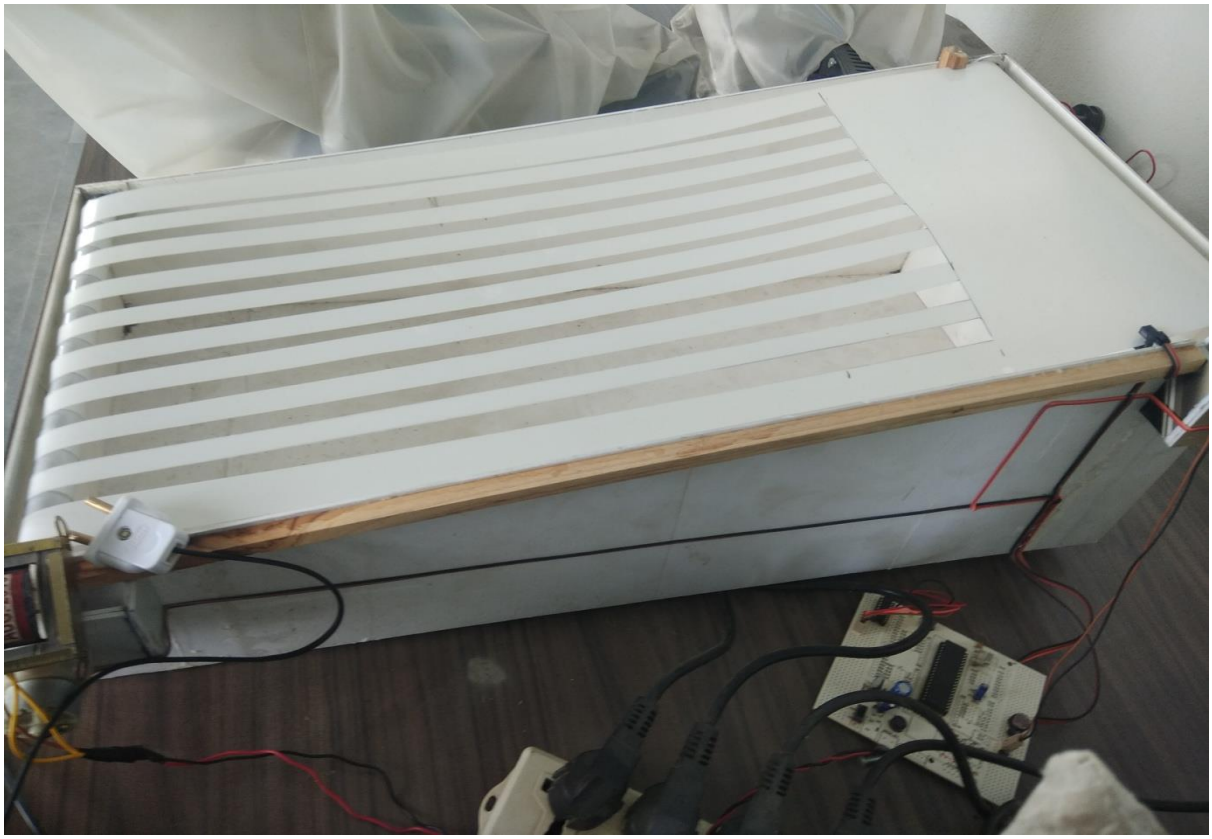


Figure of Project Prototype

CONCLUSION

The Automatic Crop protection has been achieved successfully using microcontroller unit. The circuit has been tested and verified. We Developed Automatic crop protection shed programmed by using the microcontroller. The program has been successfully tested and verified for several specified conditions. The switching mechanism can be done automatically with the help of microcontroller using D.c motor. By using this project we can protect thousands of hectares of land from unseasonal rain. We can also increase the rate of production of crops by which we can improve the economical standards of farmers and as production increases the cost of the crop decreases for the users.

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