

Protection of Farm by Wild Animals

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Abstract: As technology is growing at a rapid speed so in every field the use of modern technology has been also increased rapidly in recent years. Modern farming is the need of today's world. This proposal gives solution of the problems faced by the farmers. Farmers are facing problems, like farm protection, crop cutting, gardening, cleaning and pesticide sprinkling. It also gives the idea how the above mentioned problems are overcome. As protecting crop from the animals is the major concern, so firstly this proposal focused on farm protection which is based on the traditional method of protecting field from animals. For implementing the idea of farm protection PIR sensor, RF module, AVR controller and fire generating circuit with crackers are used.

Key words: Farm protection, fire generating circuit, Cutting of crop, sprinkling of pesticides, soil moisturing sensor.

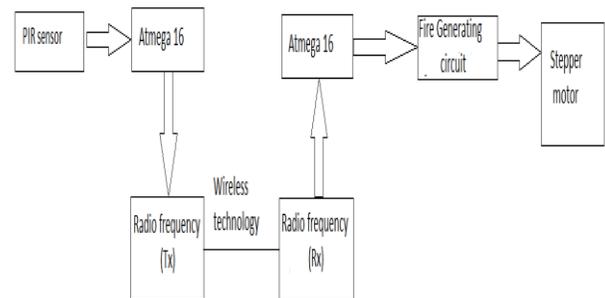


Fig 2.1 Block diagram for Farm Protection

Whole working is divided into two parts:

PART-1: Transmitter Section

1. *PIR sensor*

- In this project PIR sensor used to detect an object which comes inside the fencing of the farm.
- After detecting the object it send the signal to the AVR microcontroller.
- The range of PIR sensor around 10m, and the operating frequency is 38 KHz.

2. *Transmitter (RF Module)*

- It takes the signal from AVR and convert it into bits in binary form.
- Transmitting and Receiving frequency of this RF module is 915 MHz
- It will transmit signal in binary form.
- One transmitter is there which leads the communication from transmission side.
- We can extend the range by just raising the height of antenna.

PART-2: Receiver Section

1. *Receiver (RF Module)*

- It receives the signal from transmitter section of RF module.

2. *Fire Generating Circuit*

- After receiving the message from AVR microcontroller this circuit initiates.

I. INTRODUCTION

We surveyed on the protection of farm for the low costing purpose. Fencing method is quite costly for farmers to afford.

In our project we introduce the problems regarding farm. Farm protection is been done by less harming the animals. It has be done through firing of crackers at the boundary of farm to protect from wild animals. In this were used the wireless technology for protecting the farm through RF module, AVR controller, etc. While using another technique of crop cutting, in the farm and gardening, while sprinkling of pesticide in farm care our main objective of the farm. So we need a more appropriate machine used for this to reduce the farm wastage and make economical and easier for farmers.

Our aim is to reduce the cost of farmer by implementing some new techniques for farm. The protection of farm can be done through the easier way of wireless technology by using RF module to send the distance at a large way. The project should be useful for farmers and all other related person. Its main aim is to provide future a brighter for the farm purpose.

II. PROPOSED SYSTEM

In the proposed system, farm protection method is used to prevent the crop from the wild animals entering into the farm. Farm protection is done where the sensors are used to collect information of entering the wild animals into the farm.

- Crackers are placed on rotating disc which is rotating at a specific angle with the help of DC motor.
- With the help of DC motor we can also maintain the replacing of used crackers with new one.

III. HARDWARE USED

3.1 PIR sensor (Passive infrared sensor)

PIR sensor can measure the heat of an object as well as detects the motion. These types of radiations are invisible to our eyes that can be detected by an infrared sensor. When IR light falls on the photodiode, the resistances and these output voltages, change in proportion to the magnitude of the IR light received. Power supply for IR sensor 3-5V DC 3mA. Its output is 0V on low detection of 38 KHz carrier, 5V for high value. Sensitivity range 800nm to 1100nm with peak response at 940nm.

3.2 AVR ATmega16

It has 4 KB on chip program memory, having 128 bytes on chip data memory (RAM). While 32 bytes devoted to register banks and 16 bytes of bit-addressable memory. It has 8-bit of data bus and 16-bit address bus and 32 general purpose registers each of 8 bits.

3.3 RF module

Frequencies commonly available are commonly used in RF modules are 433.92MHz, 915 MHz and 2.4 GHz. It is used in vehicle monitoring. Small range wireless network. It has been used for Wireless home security system and Area paging.

3.4 Stepper Motor

Stepper motors are DC **motors** that move in discrete steps. They have multiple coils that are organized in groups called "phases". By energizing each phase in sequence. The **motor** will rotate, one **step** at a time. With a computer controlled stepping you can achieve very precise positioning and/or speed control.

IV. SOFTWARE USED

4.1. AVR studio

AVR instruction set is more orthogonal than those of most eight-bit microcontroller, in particular the 8051 clones and PIC microcontrollers with which AVR competes. pointer register X,Y,Z have addressing capabilities that are different from each other. Register location R0 to R15 have more limited addressing capabilities than register locations R16 to R31. I/O ports 0 to 31 can be bit addressed, unlike I/O ports 32 to 63.

Implemented idea (Farm Protection)

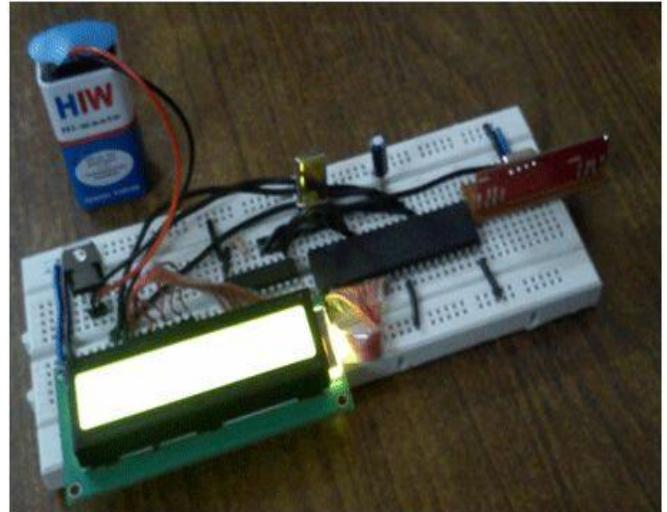


Fig 3.1 Working model of farm protection

Above figure shows the interfacing of LCD which shows the interfacing, LCD shows (1) for the firing of circuit to pass while (0) for the circuit to break.

Costing of farm protection

Sr. no	Component of farm protection	Approximate cost
1	PIR sensor	Rs 150
2	AVR microcontroller	Rs 250
3	RF module	Rs 300
4	Airgun	Rs 1000
5	Stepper motor	Rs 250
6	Fire generating circuit	Rs 200
7	Others	Rs 1500
	Total approximate cost	Rs 3650

V. CONCLUSION AND FUTURE SCOPE

5.1 Conclusion:

As we know that farmers are the main pillars of every nation so in this proposal we tried to solve the problems faced by the farmers in the farming the crops. For Farm protection we made the hardware which is based on the sensors, transmitter-receiver pair and AVR microcontroller. The main objective behind this idea is that we made the circuit which fire the crackers when any animal is approaching towards the fencing around the field. If we are not stopping those animals then they will destroy the crop. The main advantage of our idea is that farmers will get an easy, cheap and efficient automatic system to boost up their production.

5.2 Future Scope:

In this paper, we proposed a method for protection of farm by wild animals. Embedding with the use of wireless technology the data can be transferred from

transmitter to receiver. In this proposed work the technology used is for limited part but it can be enhanced by using multifunction in one in the future.

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