DESIGN AND FABRICATION OF AUTOMATIC ANIMAL IDENTIFIER AND RESTRICTOR TO PREVENT HUMAN LIVEHOOD

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ABSTRACT

The main aim of our project is to safeguard the crops from harm caused by animal on slope areas yet by divert the animal. Animal sightation system is intended to detect the presence of animal and provide a warning , during this project we tend to used PIR sensors to sight the movement of the animal and send signal to the controller .It diverts the animal by manufacturing sound signal in additional, this signal is transmitted to GSM associate which provides an response to farmers and forest department straightaway.

Keyword : - *PIC 16F877A, PIR sensor, GSM modem, APR board.*

1. INTRODUCTION

Due to over population it happens a deforestation this leads to shortage of food, water and shelter in forest areas. So, Animals interference in residential areas is increasing day by day that affects human life and property causes human animal conflict, however as per nature rule each living creature on this earth has necessary role in eco-system. Agriculture is that the backbone of the economy however due to animal interference in agricultural lands, there'll be immense loss of crops. Elephants and different animals coming back in to contact with humans, impact negatively in varied means that like by depredation of crops, damaging grain stores, water provides, homes and different assets, injuring and death of humans. Farmers in India face serious threats from pests, natural calamities &damage by animals leading to lower yields ancient ways followed by farmers aren't that effective and it's not possible to rent guards to stay a watch on crops and stop wild animals. Since safety of each human and animal is equally important. So, animal detection system is important in farm areas.

2. LITERATURE SURVEY

As per Navya Amin, in his paper of Obstacles distance measurement using ultrasonic sensor , he developed a module which is useful to avoid collision between two parts [1]. As per Anca Discant, in his paper of Sensors for obstacles detection, he developed a sensor used to identity the obstacles by the combination of active passive sensors [2]. As per Artur Frankiewicz, in his paper of Smart passive infrared sensors, he developed a passive infrared sensors which is used for the motion detection and recognition [3]. As per Baharuddin Mustapha, in his

paper of Ultrasonic and Infrared sensor wireless system, he developed a research to increase performance of sensors in wireless obstacle detection [4]. As per Zhoxia Wang, in his paper of Community alarm based on GSM and MCU, he developed a module which infrared sensor detects the signal and send it to MCU in turn GSM module send message immediately to user [5].

3. RELATED WORK

Traditional electrical fence has been useful as a guard of crops. However, that system has some issues like it cannot inform the voltage that often drops. Moreover, the house owners of the fence have to be compelled to check the voltage however they can't understand it without going there .An electric fence management system we tend to develop uses wireless communication, and it permits the house owners to understand the voltage and therefore the state of the electrical fence and monitor it from remote locations safely. It describes a demonstrative experiment in an exceedingly mountainous region, and suggests an approach to resolve some issues. The system consists of a display, the farmers are ready to measure voltage at the fence, and have a capability to indicate it. Therefore the house owners will understand the state of the electrical fence.

4.SPECIFICATIONS

4.1 APR(AUDIO VOICE RECORDER & PLAYBACK):

The APR33A3 are powerful audio processor along with high performance audio analog-todigital converters (ADCs) and digital-to-analog converters (DACs). The APR33A3 incorporates all the functionality required to perform demanding audio/voice applications. Systems with lower bill-of-material costs can be implemented with the APR33A3 because of its integrated analog data converters and full suite of quality enhancing features such as sample-rate convertor. The APR33A3 is specially designed for simple key trigger, user can record and playback the message averagely for 1, 2, 4 or 8 voice message(s) by switch.
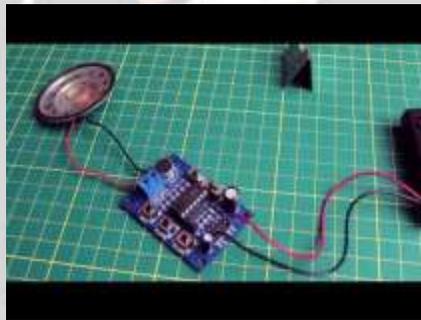
Fig -1: AUDIO VOICE RECORDER & PLAYBACK

4.2 GSM SIM900A MODEM

The Modem is coming with RS232 interface, which allows you connect PC as well as microcontroller with RS232 Chip(MAX232). The GSM/GPRS Modem is having internal TCP/IP stack to enable you to connect with internet via GPRS. It is suitable for SMS, Voice as well as DATA transfer application in M2M interface. The onboard Regulated Power supply allows you to connect wide range unregulated power supply. Using this modem, you can make audio calls, SMS, Read SMS, attend the incoming calls and internet through simple AT commands.

Fig -2: GSM SIM900A MODEM

4.3 ULTRASONIC SENSOR:

Ultrasonic ranging module HC - SR04 provides 2cm - 400cm non-contact measurement function, the ranging accuracy can reach to 3mm. The modules includes ultrasonic transmitters, receiver and control circuit. When an electrical pulse of high voltage is applied to the ultrasonic transducer it vibrates across a specific spectrum of frequencies and generates a burst of sound waves. Whenever any obstacle comes ahead of the ultrasonic sensor the sound waves will reflect back in the form of echo and generates an electric pulse. It calculates the time taken between sending sound waves and receiving echo working voltage of 5V.
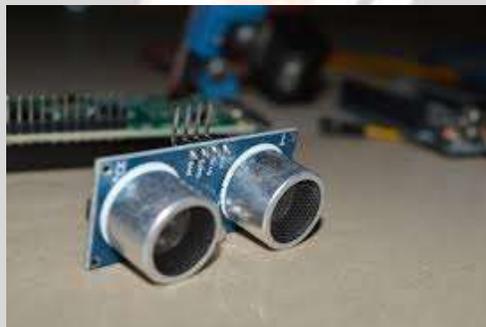
Fig -3: ULTRASONIC SENSOR

4.4 LIGHT DEPENDENT RESISTORS:

An LDR or light dependent resistor is also known as photo resistor, photocell, photoconductor.It is a one type of resistor whose resistance varies depending on the amount of light falling on its surface.When the light falls on the resistor, then the resistance changes. These resistors are often used in many circuits where it is required to sense the presence of light. These resistors have a variety of functions and resistance. For instance, when the LDR is in darkness, then it can be used to turn ON a light or to turn OFF a light when it is in the light. A typical light dependent resistor has a resistance in the darkness of 1MOhm, and in the brightness a resistance of a couple of 1KOhm.These devices depend on the light, when light falls on the LDR then the resistance decreases, and increases in the dark.

4.5 PIR SENSOR:

A passive infrared sensor (PIR sensor) is an electronic device that measures infrared (IR) light radiating from objects in its field of view. Apparent motion is detected when an infrared source with one temperature, such as a human, passes in front of an infrared source with another temperature, such as a wall.PIR sensor detects a human being moving around within approximately 10m from the sensor. This is an average value, as the actual detection range is between 5m and 12m Power is usually up to 5V .

Fig -4: PIR SENSOR

4.6 PIC16F877A:

The microcontroller that has been used for this project is pic series.PIC microcontroller is the first RISC based microcontroller fabricated in CMOS (complementary metal oxide semiconductor) that uses separate bus for instruction and data allowing simultaneous access of program and data memory.The main advantage of CMOS and RIC combination is low power consumption resulting in avery small chip size with a small pin count. The main advantage of CMOS is that it has immunity to noise than other fabrication techniques.Program flash:8k;Data memory: 368 bytes;Data EEPROM: 258 bytes


Fig -5: PIC16F877A

5.METHODOLOGY
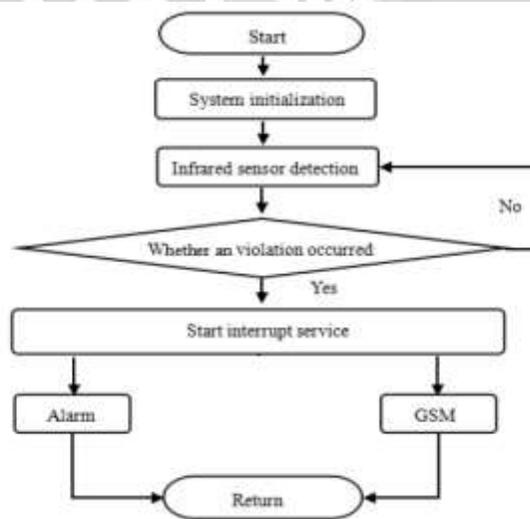

Fig -6: PROCESS FLOW DIAGRAM
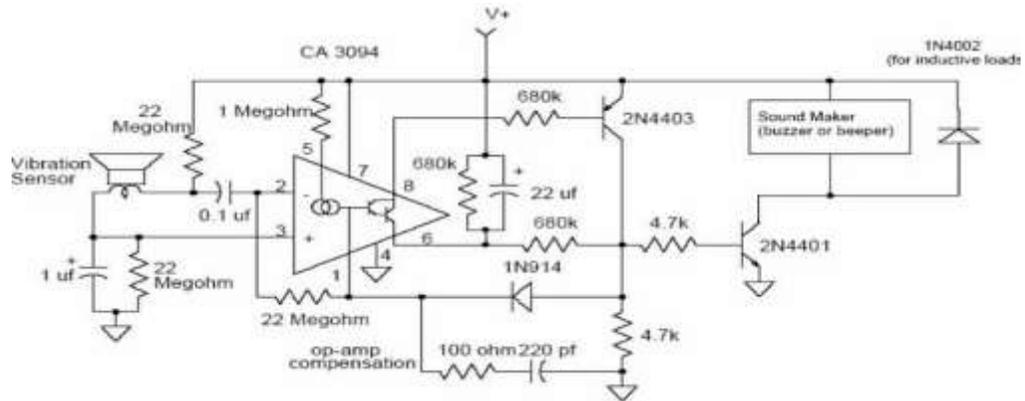
**Fig -7:** CIRCUIT CONNECTIONS
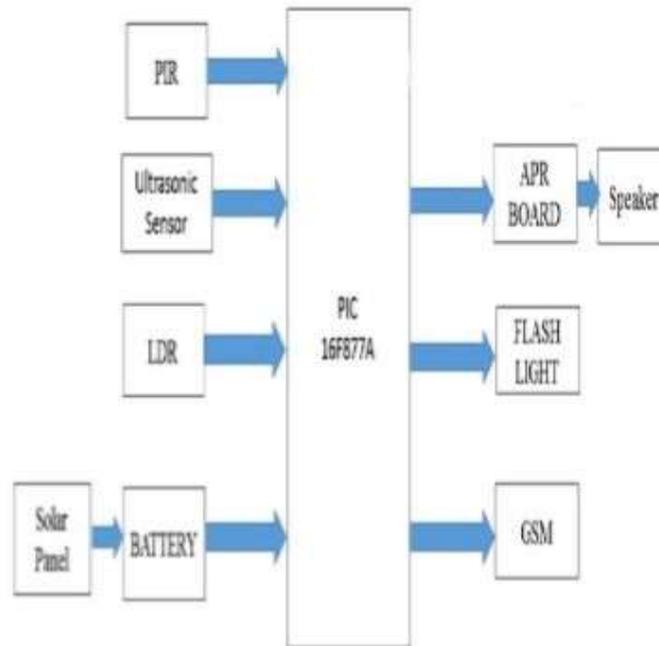
Fig -8: PROCESS BLOCK DIAGRAM

6.WORKING

In our proposed work, when the animal enter into the farm area. The PIR and ultrasonic sensor detect the presence of the animal and send an input signal to the controller. Immediately, the APR board will be on, and the sound is played to divert the animal. During night time the flash light will be on and the message will be send to the forest department and a call to the farmer. Power supply will be given by the solar panel or from regulated power supply. The GSM module is used for sending SMS and make call.
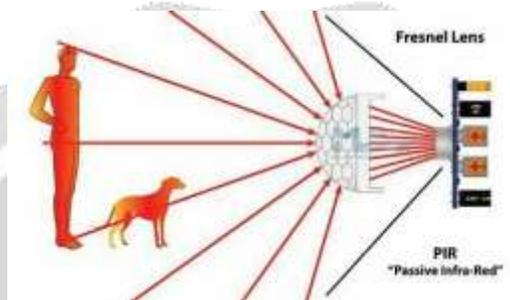

Fig -7:WORKING OF ULTRASONIC MODULE

Fig -8: PIC16F877A MICROCONTROLLER BASED ANIMAL IDENTIFIER

7. CONCLUSION

In rural components of Asian country, farmers encounter severe threats like harm done by animals. Hence, to beat this issue we've got designed a system during which sound is compete and by victimization. LDR it detects candlepower, if it's less, it'll focus the sunshine. In order that wild animals won't enter into the farm , It'll run away. From this it's complete, that the planning system is extremely helpful and cheap to the farmer. The planning system won't be dangerous to animal and soul, and it protects farm.

8.FUTURE DEVELOPMENT

In the future, there'll be terribly massive scope, this project may be created supported wireless networks. Wireless detector network and sensors of various varieties square measure accustomed collect info of crop conditions and environmental changes and these information is transmitted through network to the farmer that initiates corrective actions. Farmers square measure connected and awake to the conditions of the agricultural field at anytime and anyplace within the world.

9. REFERENCES

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