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# Solar Based Birds Repeller to Protect Crops From Birds and Animals

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## ABSTRACT

Farmers utilize numerous bright visual and speech startling procedures, obstructions, agronomic planting or gathering changes, and winged creature populace's mistreatment strategies. Under certain conditions these techniques can lessen harm. Be that as it may, their adequacy is liable to such factors as the period of the year, the sort and development phase of the yield, the nuisance species and its bounty, the size and responsibility for field, and the steadiness and energy of the flying creature alarms. The powerlessness of farmers to reliably and effectively shield their harvests from feathered creatures supports sentiments of dissatisfaction, and regularly prompts their surrendering cultivating.

Plainly commonsense, affordable, and pertinent arrangements are required by conventional farmers if future sustenance creation objectives will be met. When all is said in done, a gadget to startle flying creatures with sound is powerful over a more extensive zone than one which utilizes enhanced visualizations

## I.INTRODUCTION

Agribusiness in India is the broadest financial area and assumes a critical job in the general financial factor of India. The expanding news articles in TV and paper on wild creatures striking rural yields amid gather season demonstrates that these creatures can decimate a rancher's occupation. In such territories Electric fencing framework can be utilized in which the creatures experience a high voltage low flow stun for a brief timeframe. As a result of the little extent of current there is no risk to the creature's life In the meantime the substantial greatness voltage drives off the creatures.

Flying creatures exist in our regular habitat. In spite of the fact that a portion of these winged animals are valuable to man, a couple of types of them can be negative to people. Flying creatures can be an aggravation when they cause harm and medical issues. An overview of the New Zealand farmers by the country's Plant Protection Society, uncovered that expansive level of them had experienced yield harm from flying creatures (Coleman and Spurr 2001). In Nigeria, farmers

particularly those situated in the northern area experience harm to their harvest from flying creature bothers. The size of devastation brought about by these feathered creature nuisances can now and again be extremely extraordinary.

## II.EXISTING METHOD:

Some disappointed farmers may set up electric fences around their fields. This is illicit and is extremely risky. It might make deadly wounds creatures and even lead to human causalities because of stun dangers. It likewise prompts an extraordinary wastage of electric power.

## III.PROPOSED METHOD:

We utilizing ultrasonic sensor and PIR sensor to recognize the flying creatures or creatures which are pulverizing crop fileds.These sensors offer contribution to the miniaturized scale controller. This miniaturized scale controller peruses the information and procedure the directions put away in it. At the point when sensors enacted consequently a recorded voice will pay through a voice play back circuit. By hearing this sound winged creatures or creatures will took off from field. This observing procedure is persistently going on. The whole framework is controlled by Solar power supply with battery reinforcement .So we can likewise utilize this in remote areas where ordinary electric supply inaccessible. We utilized battery for reaping electrical vitality which gets vitality from sun powered board in light. So we can utilize this in evening additionally by utilizing battery.

**Hardware:**

Arduino Mega
Solar Panel
Battery
Ultra sonic sensor
PIR Sensor
Relay
LCD
Voice Play back circuit
DC Motor
L293 Motor Driver circuit

**Software:**

Keil IDE
C language

**Block Diagram**:

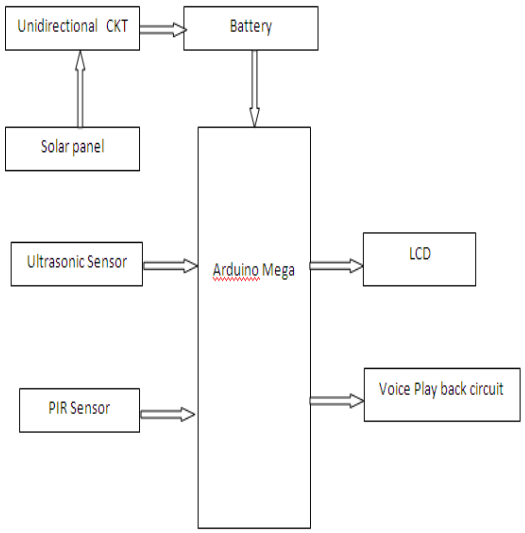



Fig1:Block Diagram

## IV.HARDWARE DESCRIPTION:

### A.Arduino Mega

Arduino is an improvement board that coordinates a microcontroller and its help hardware with advanced and simple information sources and yields. It has an open source processing improvement stage dependent on a domain for projects creation.

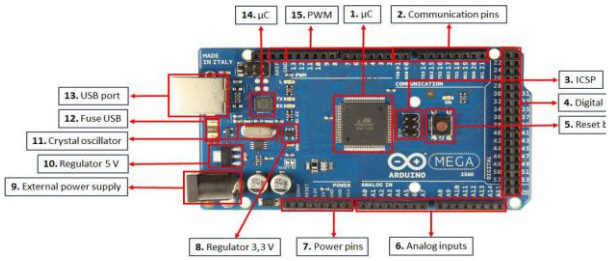



**Fig 2:Arduino mega**

**B.voice play back module:**

This module is base on ISD1820, which a different message record/playback gadget. It can offers genuine single-chip voice recording, no-unstable capacity, and playback ability for 8 to 20 seconds. The example is 3.2k and the all out 20s for the Recorder.

This module use is simple which you could coordinate control by push catch ready or by Microcontroller, for example, Arduino, STM32, ChipKit and so on. Frome these, you can simple control record , playback and rehash, etc.

**Fig 3 :Voice playback circuit**

**C.PIR sensor**

PIR sensor identifies an individual moving around inside roughly 10m from the sensor. This is a normal esteem, as the genuine location run is somewhere in the range of 5m and 12m.PIR are on a very basic level made of a pyro electric sensor, which can distinguish dimensions of infrared radiation. For various fundamental activities or things that need to find when an individual has left or entered the region. PIR sensors are unimaginable, they are level control and negligible exertion, have a wide focal point go, and are easy to interface with.

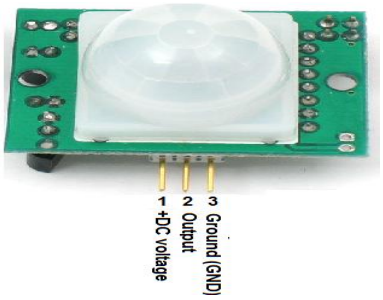



**Fig 4:PIR Sensor**

**D.ultrasonicsensor:**

A Ultrasonic sensor is a gadget that can quantify the separation to an item by utilizing sound waves. It apportions separate by sending a sound wave at a particular recurrence and tuning in for that sound wave to ricochet back. By chronicle the slipped by time between the sound wave being produced and the sound wave ricocheting back, it is conceivable to figure the separation between the sensor and the item

**V.RESULTS:**

**Fig 5:solar panel**

Solar panels absorb sunlight as a source of energy to generate electricity. Photo voltaic modules constitute the photo voltaic array of a photo voltaic system that generates and supplies solar electricity in commercial and residential applications.it can be used in agriculture as power source for irrigation. In health care solar panels can be used to refrigerate medical supplies.

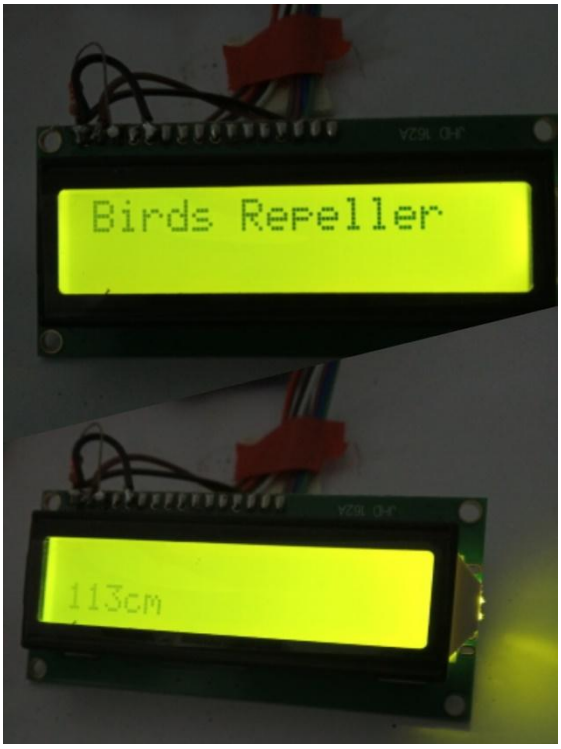
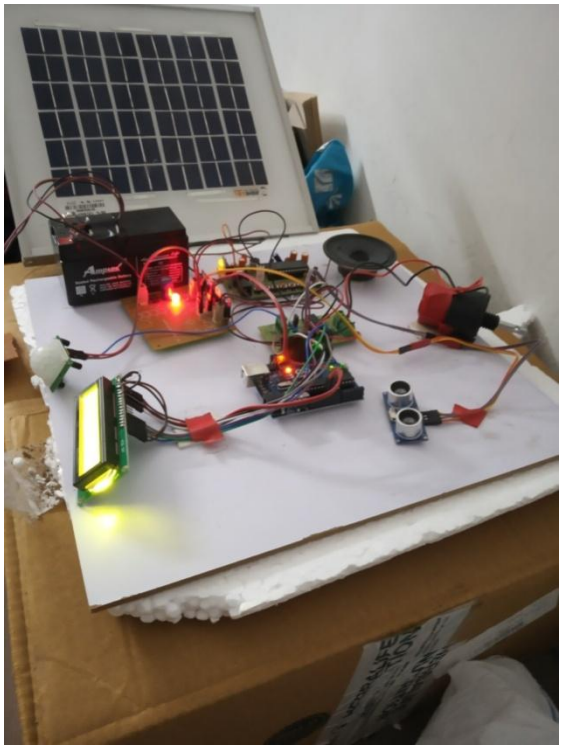



**Fig 6:Liquid crystal display**

A liquid crystal display is a flat panel display or other electronically modulated optical devices that uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in colour or monochrome. LCDs are available to display arbitrary images or fixed images with low information content,which can be displayed or hidden , such as a present words, digits as in a digital clock.It is used to displaythe internal function of a microcontroller as an output.It display like title names. Bychanging some commands in the input it changesthe output as follows input.This will work when system is off it works through network. This is 16-pin LCD. 5volts of power supply. Here 6 are the commands and D0_D7 is used to display the instructions by using microcontroller.



Internally the function starts running the code was already dumped in the microcontroller. When the sensors get detected by the object the voice will be play through this circuit using one speaker.

## VI.CONCLUSION:

The utilization of ultrasonic waves; which human ears don't recognize, however are seen by little winged animals is a novel innovation that can viably repulse such feathered creatures from assigned spots. Ultrasonic waves was effectively produced, with naturally shifted recurrence (somewhere in the range of 15kHz and 25kHz), intensified and communicate at sufficiently high solid weight level from a privately created sun powered fueled electronic gadget. The 7.98W gadget delivered a ultrasound of 118dB, on the normal will cover a separation of 45.02m2 while the 23.98W with a ultrasound of 123dB will cover a separation of 232.26m2 when set on the rise of 0.78m however when set on the rise of 1.86m, their normal region inclusion will be 175.83m2 and 429.53m2 separately .The ultrasonic waves made an unfriendly domain for the vermin winged creatures and impacted them, however they have a little sweep of activity yet in the end pushed the fowls from the assigned areas. Reaction to the ultrasonic wave improvement communicated from the naturally well disposed contraption was noticeably exhibited by focused weaver flying creatures and dark feathered creatures however not quelea winged animals. The waves voyaged more remote with expanding intensity of the device and for wet days than for dry days. This is worthwhile as downpour encouraged oat crops organic product amid the stormy season and will require the sending of the device more at such a period. Around 5-6 bits of the 23.98W gadget will be expected to cover a hectare estimated field.

## REFERENCES:

1. Bishop J,Mckay H, Parrot D & Allan J (2003). Review of International ResearchLiterature Regarding the Effectiveness of Auditory Bird Scaring Techniques. www.defra.gov.uk/environment/noise/birdscaring.pdf - Retrieved on 25/03/2009.

2. Bomford, M and O'Brien, R H (1990). "Sonic Deterrents in Animal damage Control: A Review of Device Tests and Effectiveness". Wild . Soc. Bull 18:411-422

3. Boylestad, R.L and Nashelsky, L (1996) Electronics and Circuit theory, (6th ed), P

rentice Hall, New Jersey, USA. 72.

4. Coleman, J and Spurr, E (2001) Farmers Perceptions of Bird damage and Control in

Arable Crops. The New Zealand Plant Protection Society Incorporated.

5. Encarta Encyclopedia 1993-2003 Microsoft Corporation .

6. Ezeonu S.O (2009). The solar powered ultrasonic and sonic bird repellers. An unpublished PhD thesis, Dept of Physics/Industrial Physics, Nnamdi Azikiwe University, Awka , Nigeria

7. Frings, H. (1964). Sound in vertebrate pest control. Proc. Vert. Conf. 2:50-56.

8. Gootee, T. (2003). http://www.fullnet.com/u/tomg/gooteepc.htm. - Retrieved 6th July, 2005

9. Hamershock, D M (1992). "Ultrasonic as a Method of Bird Control" Flight Dynamics Directorate, WrightPatterson AFB, OH, 42.

10. Kerns, J. D. (1985). "Evaluation of the effectiveness of the 'Ultrason ET' ultrasonic device as a means of cliff swallow control" In: Woronecki, P.P. Effects of ultrasonic,visual, and