LITREATURE SURVEY

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Project Name	Project – IOT based smart crop protection system for agriculture
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IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE

ABSTRACT:

Food is the most important requirement for living beings. The main products of our food come directly or indirectly from agriculture. Now a days security of especially at high frequencies, and the gradual loss of sensitivity to higher agricultural field is very important. Crop damage by birds is a severe problem in most of the areas all over India. Field surveys showed that on an average 36% of the crop were damaged by wild birds. The incident of damage was very high in crop fields adjacent to forest areas, this resulted into direct conflict between people and birds. In everyday life farmers facing different kind of problems in agriculture. In olden days different kind of animals enter into crop they are damaging the fields. For reducing those kinds of problem they are used different kind of technique. Now a day birds are major problem in agriculture. Birds are falling on crop and eating it. In this research paper we are solving some problems. Every animal or group of animal is having a specific range of hearing frequencies. There irritating frequency is estimated by a specific logic. In day life birds creating irritating sounds in agriculture and out sides' fields also. At early morning and evening time birds falling on the crops and eating rice seeds, rabi crops, cons and wheat….etc. so we can create irritating sounds for birds, and then they can flay outside of the field. By using this research idea we can able to reduce mostly affected problem in agriculture.

INTRODUCTION:

The range of hearing describes a range of frequencies that can be heard by humans or other animals, although it can also refer to a range of levels. The human range is usually from 20 to 20,000 Hz, although humans have significant differences, especially at high frequencies, and the gradual loss of sensitivity to higher frequencies with age is considered normal. The sensitivity also varies with frequency, as shown by contours of equal intensity.

Normal screening for hearing loss usually includes an audiogram that shows the threshold levels relative to normal.

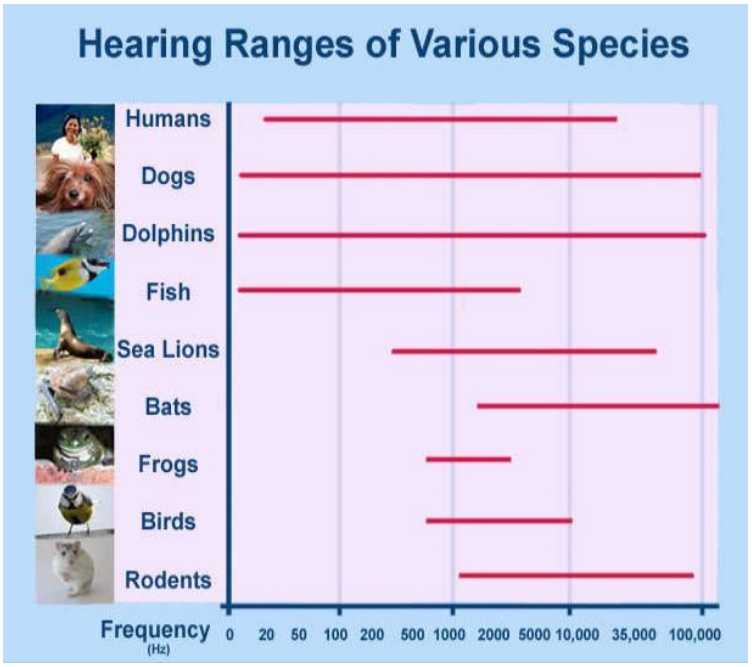
Several species of animals can hear frequencies that go beyond the limits of human hearing. For example, some dolphins and bats can hear frequencies up to 100,000 Hz. Elephants can hear sounds at 14-16 Hz, while some whales can hear infrasound sounds up to 7 Hz (in water).

MEASUREMENT:

The basic measure of hearing is provided by an audiogram, a graph of the minimum sound level, distinguishable at different frequencies along the nominal auditory range of the organism.

Behavioral hearing tests or physiological tests can be used to detect auditory thresholds of humans and other animals. For people, the test includes the tones that occur at certain frequencies (tone) and intensity (volume). When an object hears a sound, it indicates it by raising a hand or pressing a button. The lowest intensity that can be heard is recorded. The test varies for children; Your answer to the sound can be indicated by turning your head or using a toy. The child learns what to do by listening to the sound, such as putting the toy person in the boat. This method can be used to test animals, where food is used as a reward for the reaction to sound. Information on hearing of various mammals was obtained mainly through behavioral hearing tests.

Animal	Hearing range in Hertz
Humans	20 – 20,000
Bats	2000 – 110,000
Elephant	16 – 12,000
Fur Seal	800 – 50,000
Beluga Whale	1000 – 123,000
Sea Lion	450 – 50,000
Harp Seal	950 – 65,000
Harbor Porpoise	550 – 105,000
Killer Whale	800 – 13,500
Bottlenose Dolphin	90 – 105,000
Porpoise	75 – 150,000
Dog	67 – 45,000
Cat	45 – 64,000
Rat	200 – 76,000
Opossum	500 – 64,000
Chicken	125 – 2,000
Parakeet	200 – 8,500
Horse	55 – 33,500



LITREATURE SURVEY:

Between 1974 and 1991, the amount of damage caused by sparrows in Japan showed a sharp drop. Since the main crop eaten by sparrows is rice, this probably reflects the decline in the area of paddy fields over that period. Damage by other birds increased, however, especially by the brown-eared bulbul. On the whole, crop damage by birds in Japan is tending to increase.

What are the reasons for this? First of all, the number of birds is increasing. Many farmers are using combines to harvest rice and wheat. Quite a large number of grains reaped in this way are left behind in the field. This gives birds an abundant and high-quality food supply that contributes to the increase in numbers, and keeps it stable.

Furthermore, many farmers are beginning to plant rice by direct seeding rather than by transplanting. The sown seed is a food resource for ducks if the paddy fields are flooded and for sparrows and pigeons if the fields are drained.

In some cases, damage has occurred to new crops. One example is the brown-eared bulbul, which began to eat the leaves of various kinds of leaf vegetables. Bulbuls were formerly migratory birds, which overwintered in the southern part of Japan and bred in the mountainous and northern regions of Japan. In the 1970s, they became year-long residents and began to cause severe damage to winter cabbage and
other leaf vegetables. In the case of Japanese pear, bird damage became much worse after the introduction of new varieties such as Kosui, which have higher sugar content than traditional varieties.

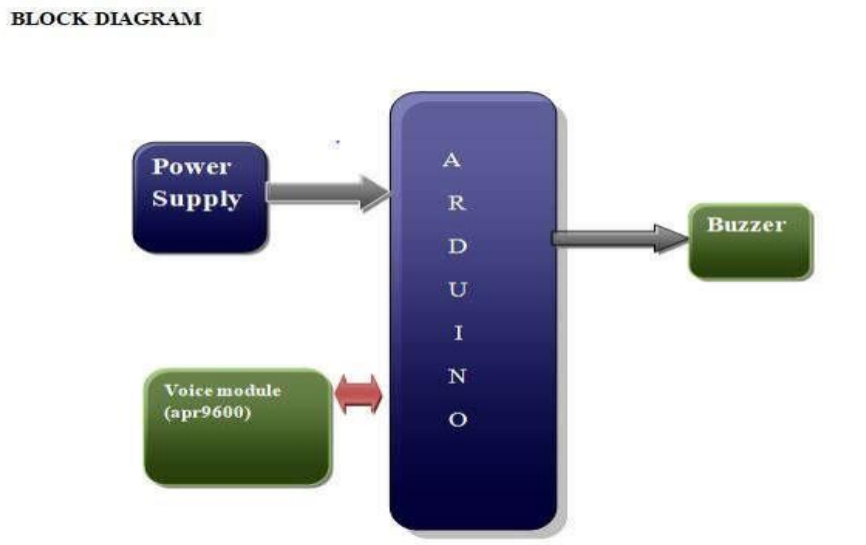
Sometimes a new pest bird species appears. An example is the Chinese bulbul (Pycnonotus saneness) which appeared in Okinawa for the first time in 1976 and

began eating the leaves and fruit of vegetables.

BLOCK DIAGRAM:

For developing this project we are using Arduino, APR900,IR, and buzzer. First step in this project we have to record some species sound in controller by using the Apr900 module.

Key word: Arduino (ATMEGA328) , APR900, IR Sensor, Buzzer.



ARDUINO:

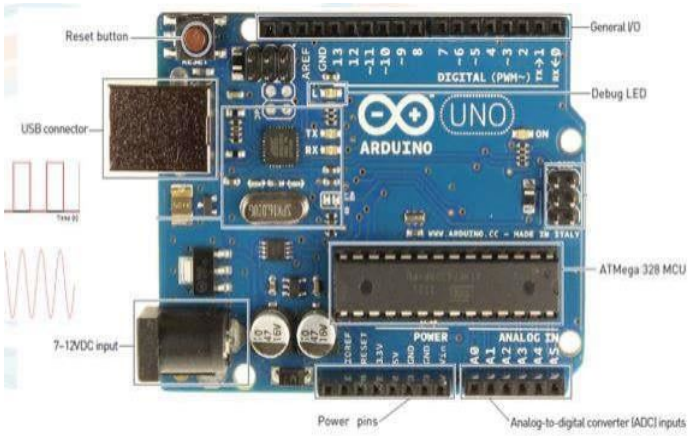
Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so you use the Arduino programming language (based on Wiring), and the Arduino Software

(IDE), based on Processing.

Over the years Arduino has been the brain of thousands of projects, from everyday objects to complex scientific instruments. A worldwide community of makers - students, hobbyists, artists, programmers, and professionals - has gathered around this open-source platform, their contributions have added up to an incredible amount of accessible knowledge that can be of great help to novices and experts alike.

Features of the Arduino UNO:

- ✓ Microcontroller: ATmega328
- ✓ Operating Voltage: 5V
- ✓ Input Voltage (recommended): 7-12V
- ✓ Input Voltage (limits): 6-20V
- ✓ Digital I/O Pins: 14 (of which 6 provide PWM output)
- ✓ Analog Input Pins: 6
- ✓ DC Current per I/O Pin: 40 mA
- ✓ DC Current for 3.3V Pin: 50 mA
- ✓ Flash Memory: 32 KB of which 0.5 KB used by bootloader
- ✓ SRAM: 2 KB (ATmega328)
- ✓ EEPROM: 1 KB (ATmega328
- ✓ Clock Speed: 16 MHz



APR9600:

The APR9600 device offers true single-chip voice recording, on-volatile storage, and playback capability for 40 to 60 seconds. The device supports both random and sequential access of multiple messages. Sample rates are user-selectable, allowing designers to customize their design for unique quality and storage time needs. Integrated output amplifier, microphone amplifier, and AGC circuits greatly simplify system design. the device is ideal for use in portable voice recorders, toys, and many other consumer and industrial applications.

IR:

Infrared Obstacle Sensor Module has builtin IR transmitter and IR receiver that sends out IR energy and looks for reflected IR energy to detect presence of any obstacle in front of the sensor module. The module has on board potentiometer that lets user adjust detection range. The sensor has very good and stable response even in ambient light or in complete darkness.

SPECIFICATIONS:

- Operating Voltage: 3.0V-5.0V
- Detection range: 2cm-30 cm (Adjustable using potentiometer)
- Current Consumption: at 3.3V : ~23 mA, at 5.0V: ~43 mA
- Active output level: Outputs Low logic level when obstacle is detected
- On board Obstacle Detection LED indicator

ADVANTAGES:

- Reduce human work
- Less cost
- More efficient
- Smart work

APPLICATIONS:

- Fields
- Railway station
- Road crossing
- Industrial areas
- Lift

CONCLUSION:

The experimental results are obtained for particular animals like Dog, Cow and Cats. It was successfully tested. It is a new approach in social aspects for wild animal death avoidance and accidents prevention. Animal specific frequency spectrum signals are generated. The specific animals are alerted with these signals of danger and successfully ran away. System can be added on vehicles or trains instead of mounting poles on road side.

REFRENCES:

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