[ANIMAL SCARY GUN]

A report submitted in partial fulfillment of the Academic requirements for the award of the degree of

Bachelor of Technology

VIJAY - 19H51A05J4

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UNDER THE COURSE

SOCIAL INNOVATION IN PRACTICE

CENTRE FOR ENGINEERING EDUCATION RESEARCH

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)
(NAAC Accredited with 'A' Grade & NBA Accredited)
(Approved by AICTE, Permanently Affiliated to JNTU Hyderabad)
KANDLAKOYA, MEDCHAL ROAD, HYDERABAD-501401

2020-21

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CERTIFICATE

This is to certify that the report entitled **"ANIMAL SCARY GUN "** is a bonafide work done by Vijay vardhan - 19H51A05J4 ,Beldhe Manikanta - 19H51A05J7,Tanuja - 19H51A05J8, Usha - 19H51A05K1,Ganendhar - 19H51A05K3 of II B.Tech, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology, submitted to Centre for Engineering Education Research, CMR College of Engineering & Technology, Hyderabad during the Academic Year 2020-21.

(Names of the project coordinators)

1. Mr. B. Suresh Ram
2. Mrs. N. Suvarna

(Mrs.D. Sowjanya)

Head CEER

DECLARATION

We, the students of II B.Tech of Centre for Engineering Education Research , CMR COLLEGE OF ENGINEERING & TECHNOLOGY, Kandlakoya, Hyderabad, hereby declare, that under the supervision of our course coordinators, we have independently carried out the project titled "ANIMAL SCARY GUN " and submitted the report in partial fulfillment of the requirement for the award of Bachelor of Technology in by the Jawaharlal Nehru Technological University, Hyderabad (JNTUH) during the academic year 2020-2021.

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ACKNOWLEDGEMENT

We are obliged and grateful to thank Mrs.D.Sowjanya, Head(CEER), CMRCET, for his cooperation in all respects during the course.

We would like to thank the Principal of CMRCET, Dr.V.A.Narayana, for his support in the course of this project work.

Finally, we thank all our faculty members and Lab Assistants for their valid support.

We own all our success to our beloved parents, whose vision, love and inspiration has made us reach out for these glories.

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ABSTRACT

Protecting the crops plays a major role in many fields . In the case of farmlands or agricultural lands to safeguard crops is very important at the time of harvest as well as to protect the area from animals. Various methods aim to protect crops from animals , but we tend to forget the lethargy of farmers . This leads to poor yield of crops and significant financial loss to the owners of the farmland. This problem is so pronounced that sometimes the farmers decide to leave the areas barren due to such frequent animal attacks. This scary gun helps us to keep away such animals from the farmlands as well as provides protection to crops .

As we all know farmers strained alot to protect crops from animals . So, our project animal scary gun can be used by farmers easily without any strain and it is handy .

Our project is mainly focused on protection of crops from animal attacks .It is mainly used in fields . It is very useful for farmers. The way of approach is very simple and efficient. It is very crucial to protect the yield from birds and animals. The efforts put on by the farmers earlier were too hard but are of less use. So this animal scary gun is affordable and portable.

1.INTRODUCTION:

“Not only do the software requires protection

But also crops require protection ”

Farmers are the back bone of India . They are the one who provides all the food we eat . But animal attacks in India are common now a days . Due to unavailability of proper techniques these attacks may harm farmers and also destroy their crops . Due to lack of proper safety measures these farmers are left helpless to their fate . Therefore a proper scary equipment could help save farmer’s energy and also preserve the crops .

Protecting crops from animals is a headache in any agriculture field where farmers have to strain alot . “Not only do the software requires protection, But also crops require protection ” There are many cases where farmers strain or animals may hurt .

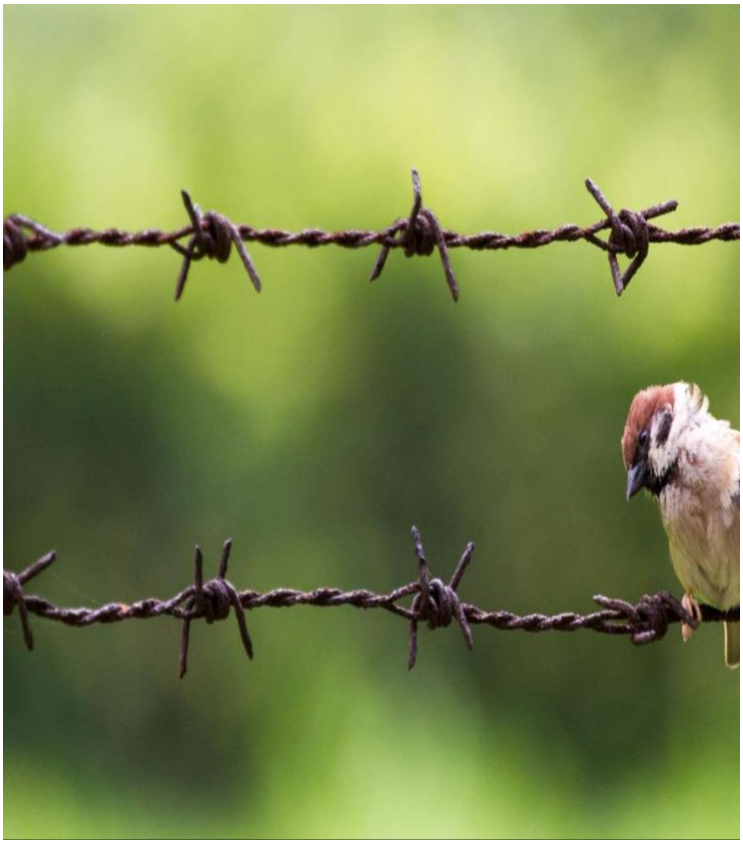
Our Animal Scary Gun helps in proteting crops in an easy way. This may help farmers to protect their crops and also saves their energy. So this is a simple explosion mechanism that uses the vibration to produce sound.

2.LITERATURE REVIEW:

2.1. EXISTING SOLUTION :

1) Agricultural fences :

In agriculture , fences are used to keep animals in or out of an area . They can be made from a wide variety of materials , depending on terrain , location and animals to be confined . This may harm animals .



DISADVANTAGES :

- Some may injure both livestock and the farmer.
- May leave gaps which allow animals to pass through.
- May take long to establish into an effective fence.

+

2) **Electronic repellents :**

This is one of the best practices for protecting crops from animals and birds. Electronic repellents are an effective, long-lasting, and eco-friendly way for crop protection that repels animals without harming them. Farmers use one of the below two types of electronic repellents;

- Ultrasonic electronic repellent – its high-frequency sound waves repel wild animals
- Sonic electronic repellent – audible noise that scares wild animals

3) Scarecrow :

A scarecrow is a decoy , often in the shape of a human . Humanoid scarecrow are usually dressed in old clothes and places in open fields to discourage birds from disturbing and feeding on recently cast seed and growing crops . Scarecrows are used by farmers to protect their crop from birds.

DISADVANTAGES :

- This system is generally not effective, because birds are able to recognize the artificiality of these devices.
- A reaction to this system is temporary at best, if there is even a reaction at all.
- The birds eventually become habituated to these devices and may use their artificial adversaries as comfortable perches.

5. Proposed Solution:

As we have gone with the need statement, we gone through a literature review so that we can know what exactly our prototype must contain, what kind of updates it should have. While going through this process we came across constraints like :

1. No harm to animals .

2. Saves the energy of farmers .

3. Easy to use .

4. Time saving

PAPER MODELS :

1

Selected paper model

3.PROBLEM DEFINITION

3.1.Problem Statement:

Now-a-days, Farmers are facing a lot of problems with birds and animals. Animals and birds are damaging the crops in the fields as they attack on the yield which is in seeding stage which ends up in a huge loss for farmers. So, Farmers need to save their crops from those birds and animals. They need an instrument called Monkey scare gun which makes a huge sound. By this sound animals and birds scare and move away from the fields.

3.2 Objective:

1.The gun should be handy and portable .

2.It should have efficient echo .

3. It should not be harmful .

4. Easy to use .

3.3.Requirement Analysis:

1. **PVC PIPE:**

It's the white plastic pipe commonly used for plumbing and drainage. PVC stands for polyvinyl chloride, and it's become a common replacement for metal piping. PVC's strength, durability, easy installation, and low cost have made it one of the most widely used plastics in the world. It is a synthetic thermoplastic material made by polymerizing vinyl chloride .PVC pipes are used in a wide variety of piping applications, from transportation of drinking water over drainage solutions to advanced fire-sprinkler systems

2.CONNECTOR :

Pipe connectors is used for attach one pipe to another in order to lengthen the run or change the flow direction . These are used to combine, divert or reduce the flow of the water supply, and they come in a variety of sizes to fit the pipe they will connect.

3.**STOPPER :**

It is used to prevent leakage and permeation in construction joint by taking full advantage of polyvinyl chloride resin property of good elastic deformation . It is highly resistant to corrosion and it has excellent durability . PVC water stopper are mainly used for tunnels , bridges , storage tanks , water and waste treatment plants , dams , culverts and other places .

4.GAS LIGHTER :

A lighter is a portable device which generates a flame , and can be used to ignite a variety of items , such as gas stoves, fireworks, candles or campfire etc..,It consists of a metal or plastic container filled with a flammable liquid or compressed gas, a means of ignition to produce the flame . Alternatively, a lighter can be powered by electricity, using an electric arc or heating element to ignite the target .

5.M-SEAL :

M-Seal is a multi-purpose sealant with 4 main applications - sealing, joining, fixing and building . Its versatility and ease of application makes it commonly used across multiple industry segments, as well as households who can use it to mend broken articles, fill gaps, cracks and plug leaks in pipes and joints .

6.PVC SOLVENT :

PVC Solvent Cement is a premium quality, clear color, medium strength adhesive formulated for PVC and uPVC fitting and pipes bonding applications. It features superior adhesion, fast setting, and waterproof bonding. It is also easy to use and offers superior bonding strength.

7.OLD NEWS PAPERS :

8.STEEL RULE :

The rule is a strip of metal graduated in inches and fractions of an inch to give actual measurements. When tolerances of fractional dimensions are required, the steel rule is used. The most commonly used steel rule is the 6" rule.

9. **SAW** :

A saw is a tool consisting of a tough blade, wire, or chain with a hard toothed edge. It is used to cut through material, very often wood though sometimes metal or stone. The cut is made by placing the toothed edge against the material and moving it forcefully forth and less forcefully back or continuously forward.

This force may be applied by hand, or powered by steam, water, electricity or other power source. An abrasive saw has a powered circular blade designed to cut through metal or ceramic.

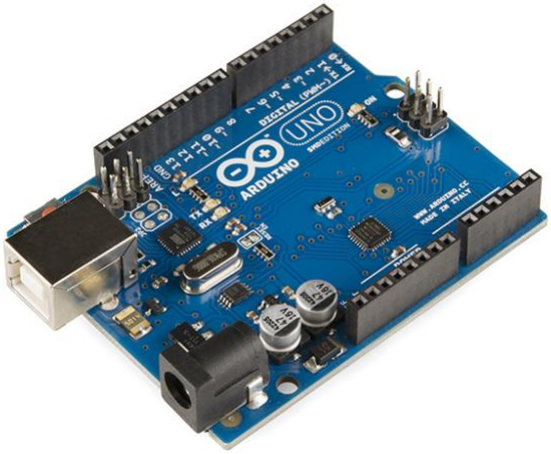
10.DRILL :

A drill or drilling machine is a tool primarily used for making round holes or driving fasteners. Drills vary widely in speed, power and size .

11.PERFUME :

Perfume is a mixture of organic compounds mostly esters (R-COO-R) dissolved in some organic solvent. Both of them are highly flammable compounds, so when they are sprayed on lighter, the aerosol particles instantly catches fire upon contact with the flame This causes the fire.

12.AURDINO :

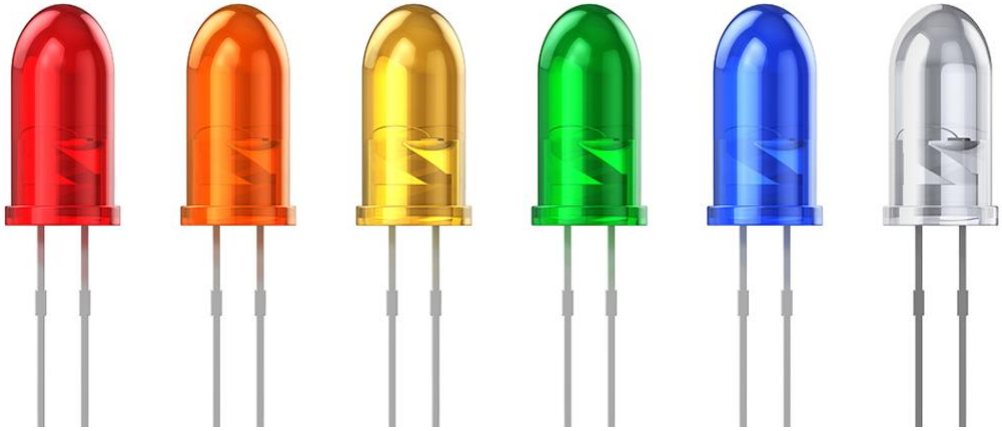


Arduino refers to an open-source electronics platform or board and the software used to program it. Arduino is designed to make electronics more accessible to artists, designers, hobbyists and ayone interested in creating interactive objects or environments.It is an open-source hardware and software company, project and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices.

13.PIR SENSORS :

A passive infrared sensor is an electronic sensor that measures infrared light radiations from objects in its field of view.

14.LED's :



A light-emitting diode is a semiconductor light source that emits light when current flows through it. Electrons in the semiconductor recombine with electron holes, releasing energy in the form of photons.

15.BUZZER :

A buzzer or beeper is an audio signalling device, which may be mechanical, electromechanical, or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.

16.JUMPER WIRES :

Jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering. Jumper wires are typically used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed.

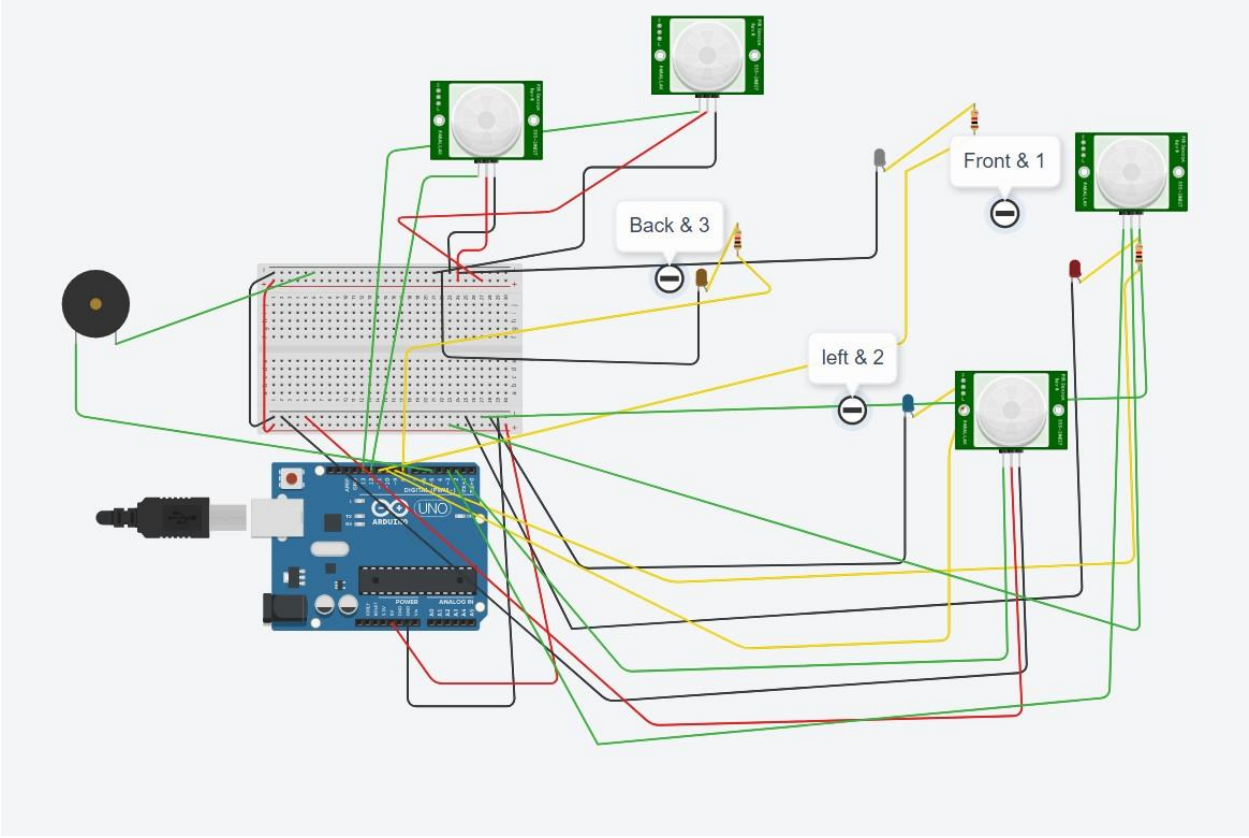
3.4 METHODOLOGY:

Our problem is to design a animal scary gun which can be used to protect the crops from animals and also it can reduce the human efforts . We designed a gun such that it can produce sound efficient i.e., if we want to protect the crop from animals , we use this gun , which produces the sound .

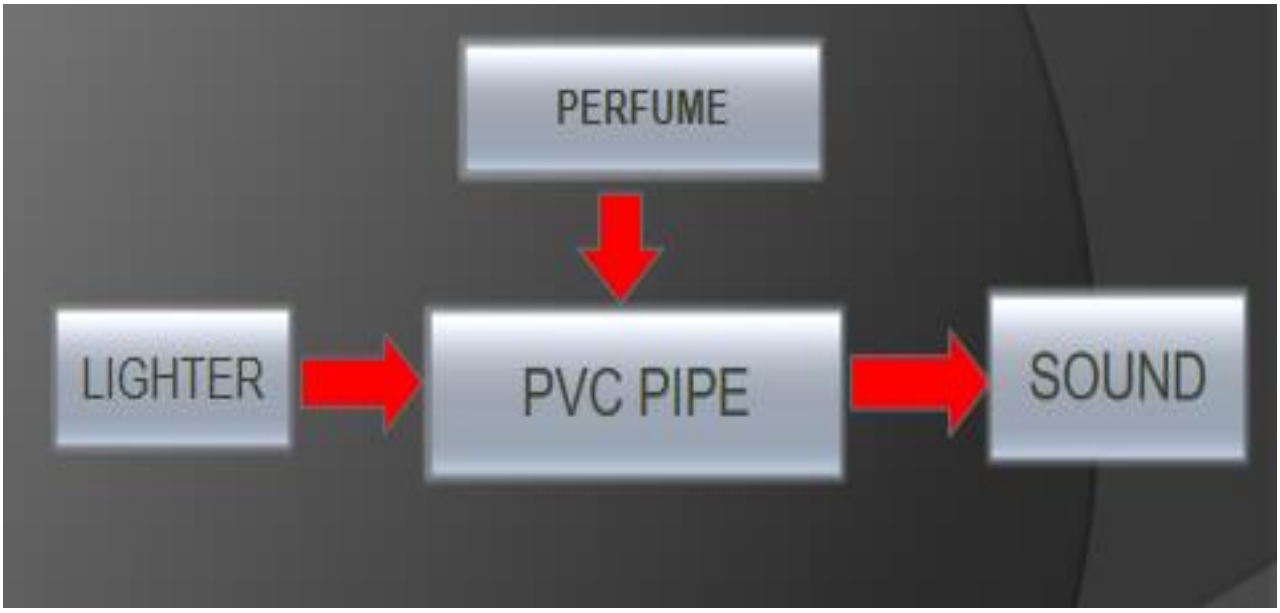
4.1 CONCEPTUAL DESIGN:

- Firstly, Take 75mm PVC pipe and measure 25cm with a steel ruler and cut it with a blade.
- Take 50mm pipe and measure 40cm with a steel ruler and cut it with a blade.
- Take 75-50mm connector and 75mm stopper & connect the 25cm pipe to a connector on one side and on the other side connect with stopper.
- Make hole on stopper with driller of gas lighter size & insert lighter into it & cover it with M-seal.
- By putting glue stick on 40cm pipe and attach to connector.
- Attach all parts systematically with glue stick.

ANIMAL SCARY GUN



4.2 BLOCK DIAGRAM:



4.3 DESIGN DESCRIPTION:

ANIMAL SCARY GUN

In recent years a lot of crop damage has been witnessed. Even the results were so scary, but the existing solutions were not soo prominent. Making the use of sound effects, our model will work. The design is followed by two PVC pipes of 75mm, 50mm diameter connected using a coupling, one end of the 75mm PVC pipe is fixed with a stopper having a lighter inserted into it. This enhancement is used to create a spark inside the pipe. The other open end of the tool i.e. 50mm PVC end is fluffed with a paper. This is all about the hardware configuration of the tool. Coming back to Software designing: The microcontroller ARDUINO and the PIR(Passive Infra Red) sensor, LED bulbs, a Buzzer is used.

When a bird entering into the field, the signal is captured by the controller ARDUINO using an PIR sensor. This signal is transferred to the LED light and buzzer so that Person in the field will get to know about it.

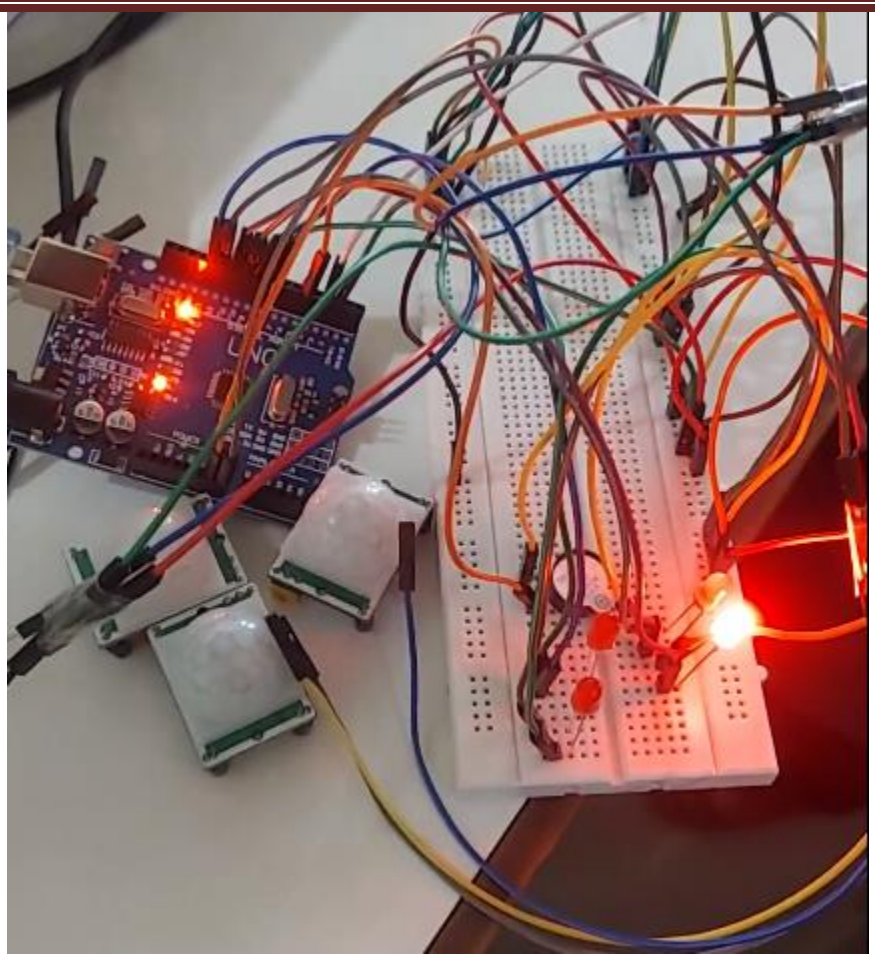
Now the farmer picks up his tool and fluffs the paper, then he will spray the perfume into the tool. Now the tool is ready to fire as it is so vibrant that it enriches the oxygen inside the tool. By the time he lights up the lighter, a small Blast is produced inside the pipe which means the sound is produced.

Finally, the tool is designed with enhancements like user friendly, affordable, portable and efficient to use.

5.IMPLEMENTATION:

5.1 RESULTS AND DISSCUSSION:

Very high intensity of sound is produced by animal scary gun. The fluffed papers were displaced to a far distance due to the blast inside in it. The perfume is dissolved in air. The pressure which is built inside will give loud sound. This guns sound will cover a large distance of land and in that way the birds and animals will move away from the fields. So,In that way we can protect our crops and we will a good yield.



The animal scary gun can be used in the following areas:

1. Fields

2. Educational Institutions

By using our animal scary gun, farmers can protect their crops, especially harvest time. This will make farmers life more effective.

5.2 CONCLUSION:

Here by we conclude that our animal scary gun is used to protect the fields from animals . The gun is less in weight and can be used by adults. It is also cost feasible. It is portable. It can be used in any kind of fields.

6.1. APPENDIX:

https://en.wikipedia.org/wiki/Crop_protection

https://blog.agrivi.com/post/top-five-strategies-to-protect-crops-from-wild-animals

https://www.amrita.edu/research/project/intelligent-animal-attack-prevention-system-crop-protection

6.2. REFERENCES:

https://www.concordmonitor.com/All-about-scarecrows-.

https://www.quora.com/How-do-farmers-protect-crops-from-birds

https://en.wikipedia.org/wiki/Agricultural_fencing

6.3.SOURCE CODE

```
int pir1 = 0;

int pir2 = 0;

int pir3 = 0;

int pir4 = 0;

void setup()

{

  //pinmodes for 4 led's

  pinMode(8, OUTPUT);

  pinMode(9, OUTPUT);

  pinMode(10, OUTPUT);

  pinMode(11, OUTPUT);


  pinMode(5,OUTPUT);//buzzer


  //pinmodes for 4 IR sensors


  pinMode(2,INPUT);//pir 1

  pinMode(3,INPUT);//pir 2
```

```
  pinMode(12,INPUT);//pir 3
  pinMode(13,INPUT);//pir 4
  Serial.begin(9600);
}

void loop()
{
  pir1 = digitalRead(2);
  pir2 = digitalRead(3);
  pir3 = digitalRead(12);
  pir4 = digitalRead(13);

  if(pir1==HIGH)
  {
    digitalWrite(8,HIGH);

    Serial.println("Motion detected at 1st pir");
    digitalWrite(5,HIGH);
     delay(5000);
  }
  else{
    digitalWrite(8,LOW);
  }
```

```
 if(pir2==HIGH)
  {
    digitalWrite(9,HIGH);

    Serial.println("Motion detected at 2nd pir");
    digitalWrite(5,HIGH);

    delay(5000);
  }
   else{
    digitalWrite(9,LOW);
  }
 if(pir3==HIGH)
  {
    digitalWrite(10,HIGH);

    Serial.println("Motion detected at 3rd pir");
    digitalWrite(5,HIGH);
     delay(5000);
  }
   else{
    digitalWrite(10,LOW);
  }
  if(pir4==HIGH)
```

```
  {
    digitalWrite(11,HIGH);
    Serial.println("Motion detected at 4th pir");
     digitalWrite(5,HIGH);
    delay(5000);
  }
   else{
    digitalWrite(11,LOW);
  }
}
```