

Design and Development of a Prototype - Electronic Langur

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ABSTRACT--- Paper is to design a mimic of an electronic langur and testing of the device in the crops and fields. Electronic Langur is a electro mechanical device which is aimed to protect the agriculture and to threaten monkeys entering and spoiling the crops and fields. Due to the extensive damage, which is countless in numbers, farmers are facing this havoc - both in terms of financial and mental ways. Well so to solve this problem humans have been far using the method of upraising a langur which works pretty well in horrifying monkeys to a good radius. But the cost of langur is growing exponentially with growth in demand, so to solve the problem temporarily we did mimic the design of a langur combined with bit of electronics.

Keywords- Electronic Langur, arduino board and servo motors

INTRODUCTION:

By 2050, globe's population may improve to 9 billion individuals, the horticulture industry will experience challenging challenges in demands of food grains one that climbs from 3 to 4.5 billion bunches which could possibly meet a predicted population, to guarantee this food items stability, one has to presume after soft product rates and also high power costs which torment various markets [2] Together, they are also contacted to minimize the prices as well as ecological effects [1] and also [3].

However to overwhelm the arising, facing problems in future and within the fields, it is necessary to get rid of it [4]. So, it is proposed to make a mimic of electronic langur, due to the characteristic nature of a langur where Langurs are faster, stronger, and agile [5]. Usually are sharper and show high levels of intelligence than monkeys. They dominate them, chase them, and beat them up. A Langur's (as shown in fig. 1) tail is capable of knocking out a monkey off its feet.



Fig. 1: Grey Langur

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LITERATURE SURVEY:

Many farmers did entitle in their daily experiences that it's hard to control and keep a constant surveillance which consumes much of their time, money and a work barrier.

A vague idea of preparing a prototype of electronic langur, that an automated surveillance could solve the problem and that gave us a spark help us to generate the idea and a rationalization of resources in optimized way may cut down the expenses in their income.

RESEARCH WORK:

LANGUR PREPARATION:

The material used in wood carving is tender soft raw wood for shaping the structures have been depicted in and as fig. 2 and 3 - before and after carpentry phase.

Details of an electronic langur:

Head & body length :	51 to 79 cm's
Tail length :	69 to 102 cm's
Weight :	25 kg's
Slider crank mechanisms required :	3
DC Motor required rpm :	3.5 Rpm
Battery :	12v (3 qty)
Required material :	Wood



Fig. 2: Before carpentry phase



Fig. 3: After carpentry phase

SETTING UP THE ARDUINO

Arduino possesses a component one that allows a produced control plan on a multitude COMPUTER, to install it to Arduino setup and hence it works automatically. Take out the USB wire connection to a COMPUTER [6], and a program that will certainly still fly leading each time - press the reset button. Remove the electric battery and put the Arduino panel in a closest distance for 6 months. When reconnect it to the electric battery, conserved last course is going to run safely and securely.

Considered in the recommended work, are as adheres to: Arduino panel USB cable, set (A to B).

9V battery or even for stand-alone procedure(exterior power source).

Solder less breadboards for exterior circuits, as well as 22 g strong cable for connections.

Lot PC functioning the Arduino development setting Models exist for Microsoft window, Mac and also Linux.

Putting up the Program and kick-starting the board.

After putting up the software application, the interface appears, currently connect the board using a USB cord offered and also choose your panel as well as select the port from sequential ports. The startup display appears one thing similar to this; slot identifying is shown in the body 4.

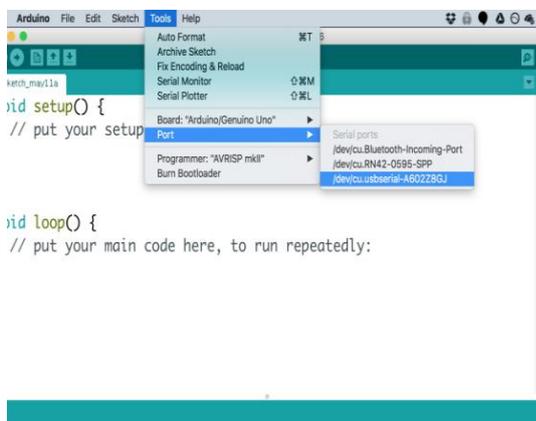


Fig. 4: The Arduino screen

PROGRAMMING PART

Hooking up Arduino board to the collection COMPUTER along with the set USB cord after that eco-friendly PWR LED are going to light. If there was currently a program

gotten rid of in Arduino, it is going to function. Otherwise it will certainly start the Arduino development setting. In Arduino-speak, courses are actually named as "designs". In the editing and enhancing window, when that home window appears, then enter the adhering to system,

```
Void setup ()
{
}
Void loop ()
{
}
```

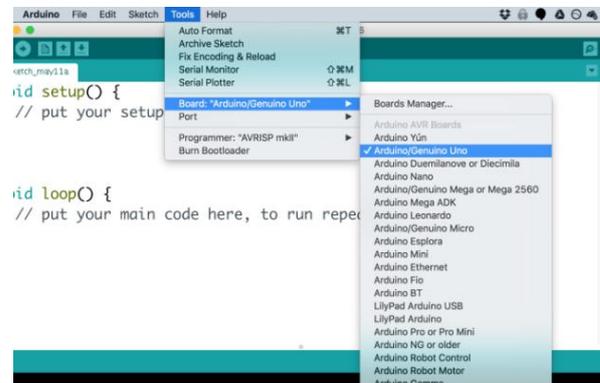


Fig. 5: Enabling Arduino/genuine uno

Once the programming part is done, upload by pressing control + U or select upload tab from the interface and wait until the uploading is done, it can track the progress on the right bottom of screen have shown in fig. 5 and then disconnect the cable.

CONNECTING TO A BATTERY

The panel needs to powered through a battery have received fig. 6. While external power a regular 9 V electric battery comes [7] It is actually better to solder the battery snap causes a DC power connect and attach to the power jack on the panel.

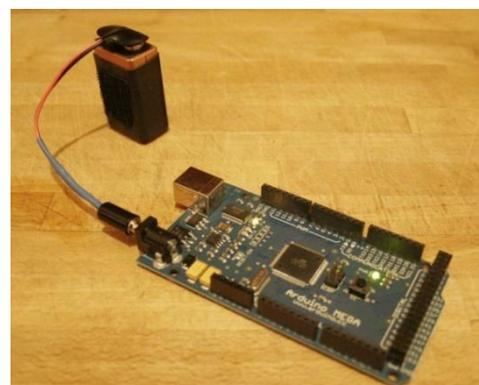


Fig. 6: Arduino Mega has been connected to a 9V battery

TROUBLESHOOTING

If there is a phrase structure inaccuracy in the program dued to a blunder in inputting, a mistake message will

definitely show up in the bottom of the program window. Normally, looking at the error will expose the problem. If you continue to have issues, make an effort these ideas

Operate the Arduino plan once more

Check out USB cord is actually safe at both the ends.

Reboot COMPUTER due to the fact that in some cases, serial port can secure

Check the driver updates manually if the port is not detected from device manager go to USB serial bus controllers section and check if the device is working properly.

MICROPROCESSOR

A microprocessor is applied to control all the functionalities in the system [8]; in general it guides the instructions from the Arduino to the rest of the other components in the environment. The microprocessor contains an IC (integrated circuit) [9]. In above chipset it consists of 16-bit pin package [10].

DRIVER MODULE

In computing, a tool named driver - is a computer plan that manages a certain form of tool that is actually affixed to a computer system. A motorist offers a software user interface to hardware tools, allowing os as well as other computer plans to gain access to hardware functions without requiring to know precise information of the components being actually used to function the body [11] Chauffeurs are actually equipment reliant and also operating-system-specific (as displayed in fig. 7) as well as give the interrupt dealing with required for any type of essential asynchronous time-dependent hardware interface.

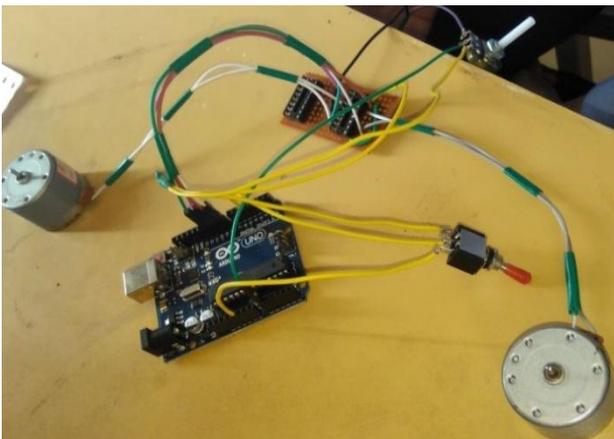


Fig. 7: Driver module connected to Arduino

SERVO MOTORS

A servomotor is a linear actuator or a rotary actuator that allows for specific control of slanted or straight position, velocity and also velocity [12] It consists of a suitable electric motor combined to a sensor for posture feedback. It also calls for a fairly innovative controller, commonly a devoted module developed especially for usage along with servomotors [13] and also [14].

Servomotors are not a specific class of motor although the term servomotor is often used to refer to a motor suitable for use in a control system. Servomotors are used in

applications such as robotics, CNC machinery or automated manufacturing.

PORTABLE SPEAKER

Wireless portable speaker [15] is a device that plays media from a content source. These portable speakers can predicting audio at high intensity making use of reduced power consumption. It is used portable speakers that play the sounds of the langur monkey on given regular interval of time. It can operate the monkey's volume by a remote control.



Fig. 8: portable speaker used for making sound

RELAY SWITCH

Relays are switches [16] that available and also close the circuit's links electromechanically. Relays regulate one electric circuit by opening up and closing get in touches with in yet another circuit [17] and also [25] As relay representations reveal, when a relay get in touch with is commonly available (NO), there is an open call when the relay is actually certainly not vitalized.

When the current is turned off, the connections open again, switching the circuit off. A practical feature of relays is actually that the circuit powering the coil is totally different coming from the circuit turned on due to the relay. Because of this, relays are actually utilized where a secure low-voltage circuit manages a high-voltage circuit.

SOFTWARE:

Paper has been studied with artificial intelligence and tracking neural signatures [18], [19], [20] and [26] from the own biological specimens and map them to create an ultimate brain map of the organism which decreases the need to write a code for the program to operate but can sense its viability and need on its own which will take decades but very promising. It's still at very fundamental approach a terrible amount of research is going on to mimic biological robots [23] and [24] (Cyborg) and create our own environmental nature [21], [22] and [27].

CODING:



```
void setup()
{
pinMode(12,OUTPUT);
pinMode(5,INPUT);
}
void loop()
{
int x=digitalRead(5);
int y=analogRead(A0);
y/=4;
if (x==HIGH)
{
analogWrite(8,y);
analogWrite(9,0);
analogWrite(10,y);
analogWrite(11,0);
digitalWrite(12,HIGH);
delay(2000);
analogWrite(8,0);
analogWrite(9,0);
analogWrite(10,0);
analogWrite(11,0);
digitalWrite(12,LOW);
delay(1000);
analogWrite(8,0);
analogWrite(9,y);
analogWrite(10,0);
analogWrite(11,y);
digitalWrite(12,HIGH);
delay(2000);
analogWrite(8,0);
analogWrite(9,0);
analogWrite(10,0);
analogWrite(11,0);
digitalWrite(12,LOW);
delay(10000);
}
}
```

CONCLUSION:

Though we have relinquished so many features in the product, there are tons of new features to be added in lot of ways. We need an entire dire of an upgrade.

The device might not help to drive away all the monkeys as of now since it's in very initial stage but it did demonstrate an optimistic result and we include a few upgrades in here.

Physical Appearance

Wood being non-flexible is not a very adaptable material at this stage and doesn't give a very smooth look, instead we can go for biological polymers or artificial skin scaffold of monkeys.

Skeletal Firmware

Use of a rigid skeletal network is a back-bone of its look and flexible moment which helps us to enhance and plot its moments perfectly.

Hardware

This is a vital and complex step since we are interested in making an autonomous driven surveillance langur, it should have an optical lens which can sense the objects and have a path navigation algorithm or an ultrasonic transducer to form a sonar plot and navigate, and this technique can be reversely engineered to hear sounds from surroundings. So it can sense the presence of monkeys, helping us to conserve the resources.

Software

Creating Software on the other hand has many different approaches like artificial intelligence and tracking neural signatures

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