Wex, the One Eyed Watcher

by **mrigsby** on October 9, 2012

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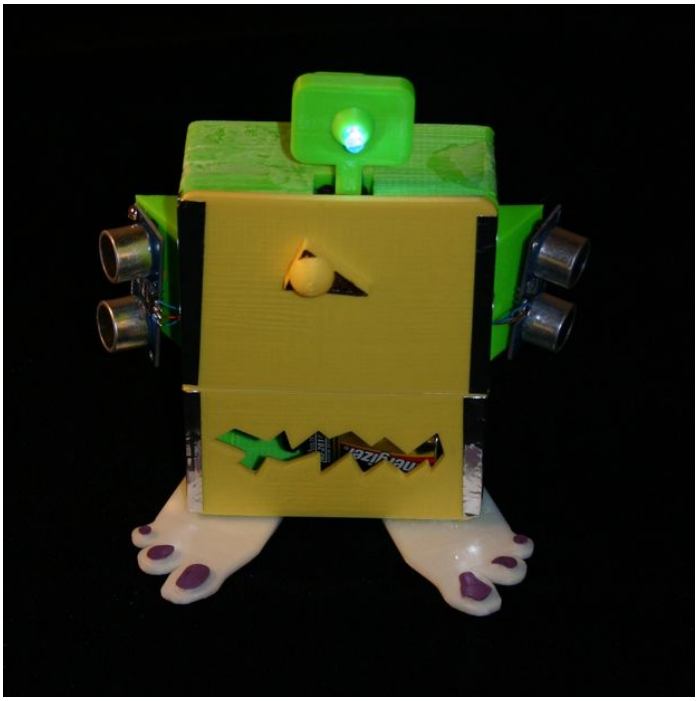
Author:mrigsby Home made iPad apps
Picture book series for kids age 3 to 7. "Phil and Freddy's Picnic" now free. I've also written an app, "How To Make A Science Fair Project." I am the author of "Doable Renewables," "Haywired" and "Amazing Rubber Band Cars." I also have published articles in Popular Science, Circuit Cellar and Robotics Age. Now, check out my iPad apps: Amazing Rubber Band Cars (one chapter, free). How to Make A Science Fair Project Phil and Freddy's Picnic (interactive picture book featuring two frogs)

Intro: Wex, the One Eyed Watcher

Wex detects your location with ultrasonic sensors then follows you with his one flashing eye. His red "heartbeat" can be seen through his mouth.



Step 1:

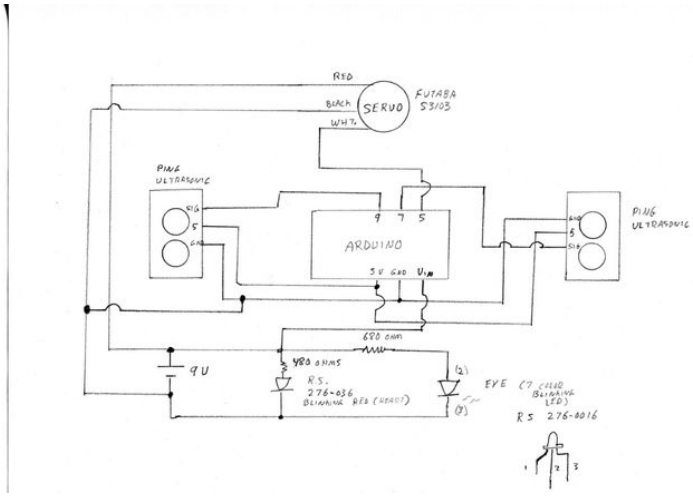
Parts needed include:

Arduino
Two ping ultrasonic sensors
Futaba s3103 servo
Radio Shack 276-0016 7 color led
Radio Shack 276-036 flashing red led
9 volt battery
480 ohm resistor
680 ohm resistor
Metal duct tape
Super glue
Case (print 3d parts--use a printing service to print them--make your own case)
http://www.thingiverse.com/thing:32121

The software "looks to the left--turn left if something there"
"look to the right--turn right if something there"
"look straight if nothing to the left or right"

```
#include <Servo.h>

Servo myservo;
const int pingPin = 7;
const int pingPin2 = 9;
long duration;
long duration1;


void setup ()
{myservo.attach(5);
}
void loop ()
{
pinMode (pingPin, OUTPUT);
```

```
digitalWrite (pingPin, LOW);
delayMicroseconds (2);
digitalWrite (pingPin, HIGH);
delayMicroseconds (5);
digitalWrite (pingPin, LOW);
pinMode (pingPin, INPUT);
duration = pulseIn (pingPin, HIGH);
if (duration <5000)
{
myservo.write(125);
delay(500);
}


// else
{
pinMode (pingPin2, OUTPUT);
digitalWrite (pingPin2, LOW);
delayMicroseconds (2);
digitalWrite (pingPin2, HIGH);
delayMicroseconds (5);
digitalWrite (pingPin2, LOW);
pinMode (pingPin2, INPUT);
duration1 = pulseIn (pingPin2, HIGH);
if (duration1 <5000)
{
myservo.write(5);
delay(500);
}
if (duration >5000 and duration1 >5000)


{myservo.write(65);
delay(500);
}}}
```



Step 2:

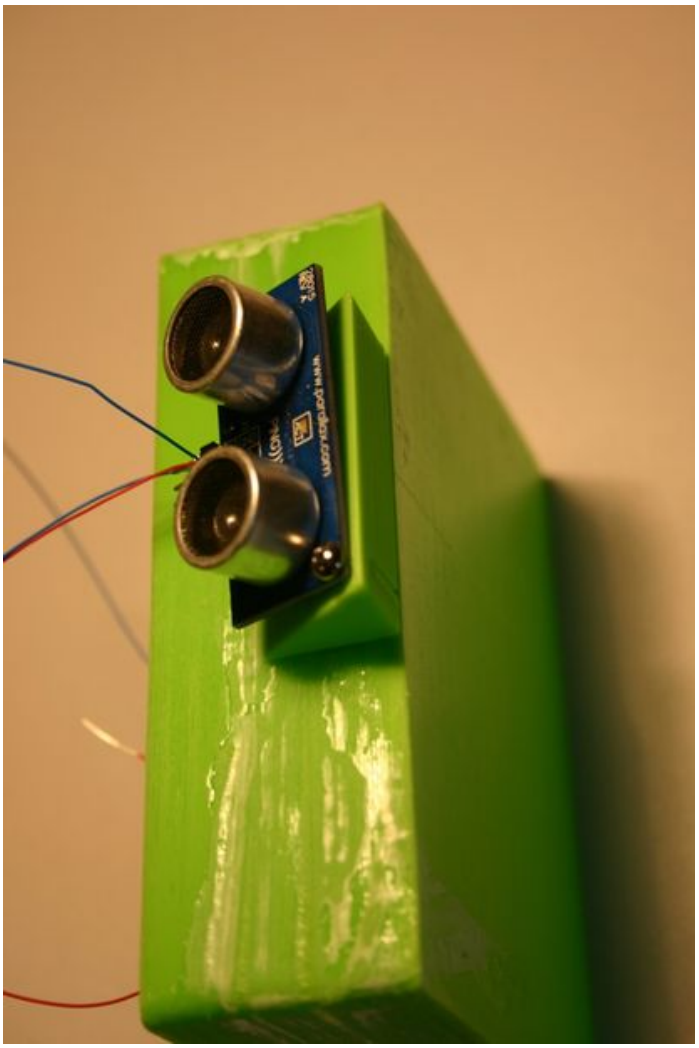
Print the case--expect shrinkage cracks.

Step 3:
Cut up plastic scraps into a can.

Step 4:
Add acetone (fingernail polish removal section of stores) and stir. Fill the cracks and let dry.

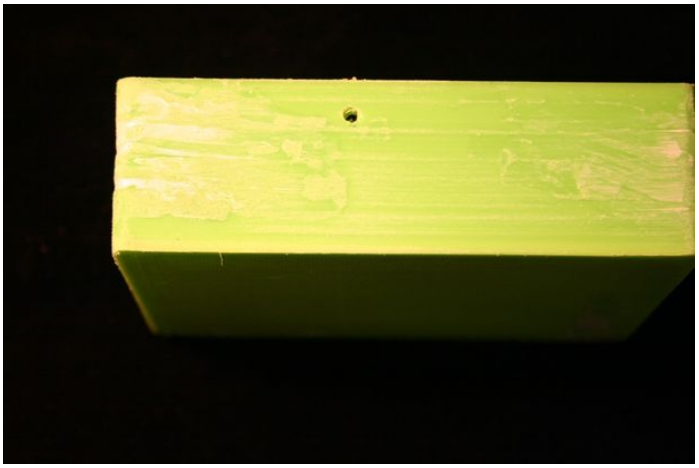
Step 5:

Fasten Ping sensors to the triangular ear pieces. Add wire wrap wire to the Ping pins. Super glue the ears to the case.



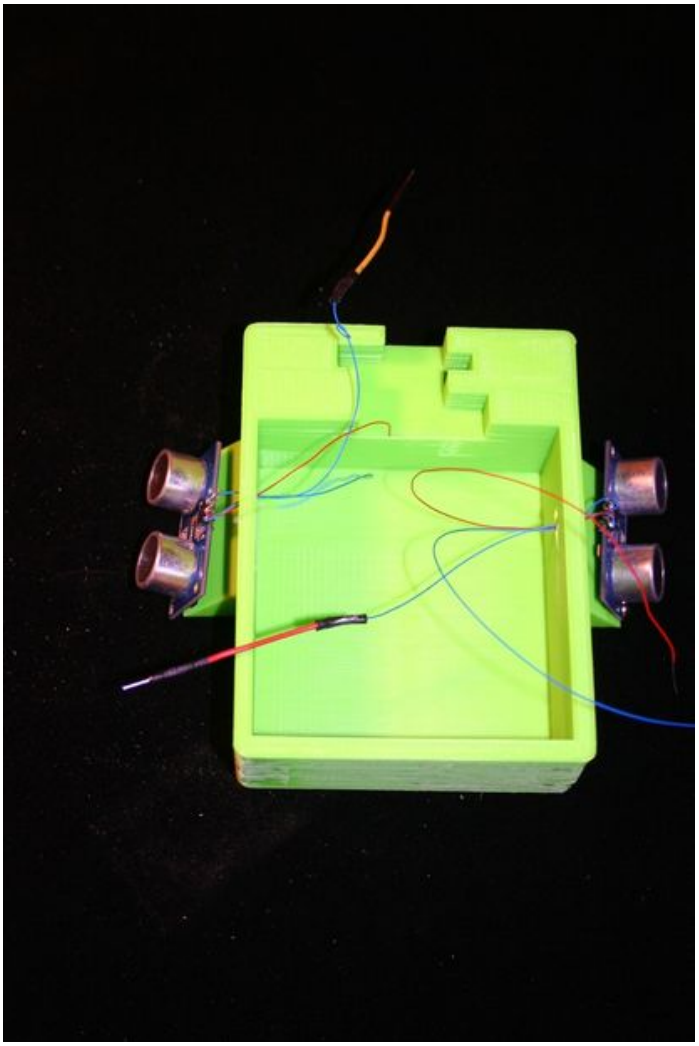
Step 6:

Drill 1/8 inch holes in the "one eye eye" case for the Ping wires.



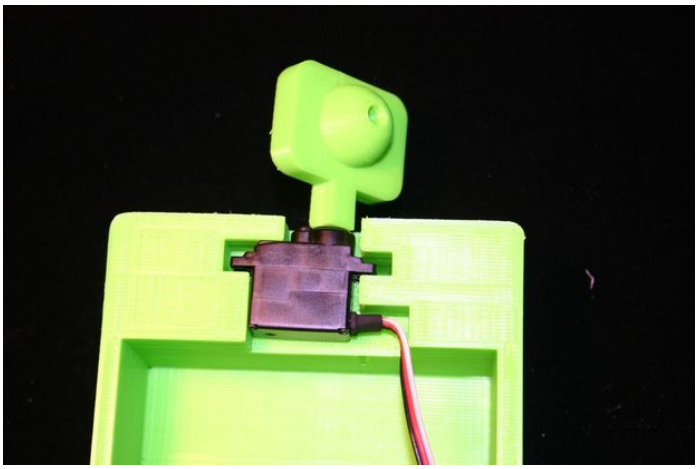
Step 7:

Route the wires through the side of the case.

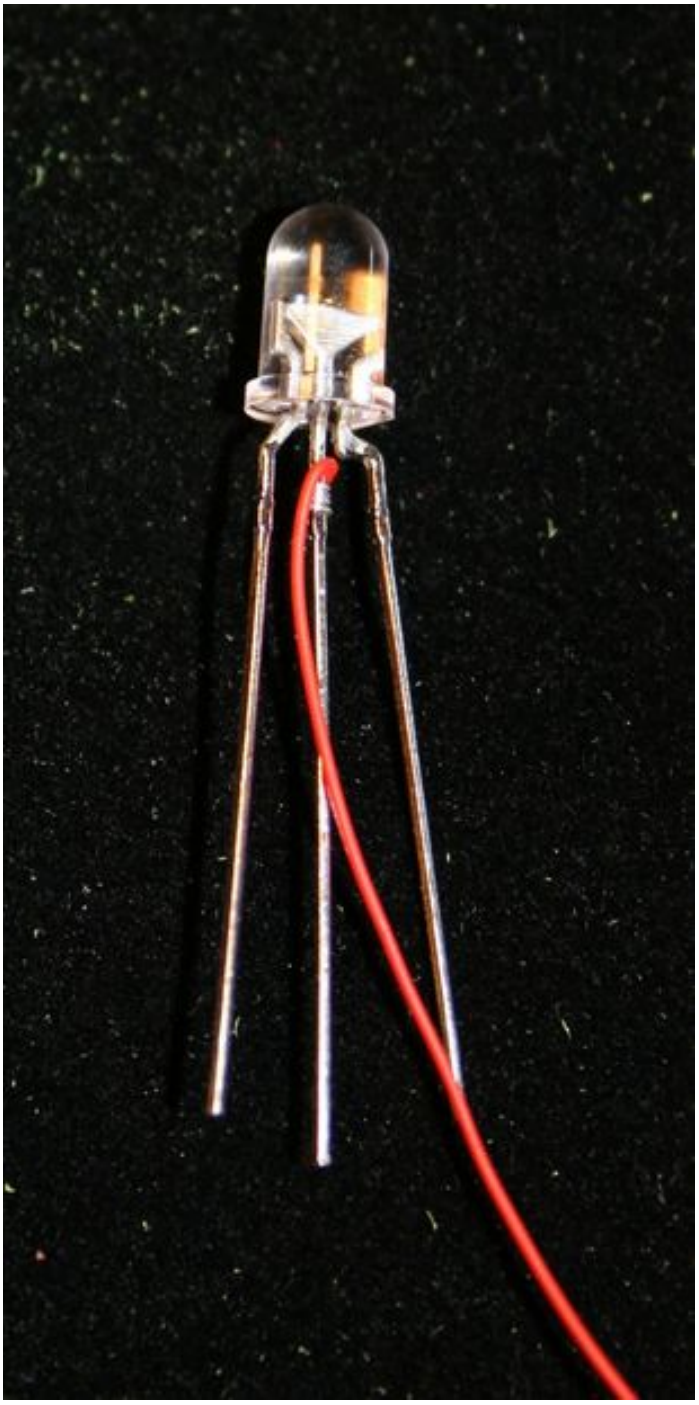


Step 8:

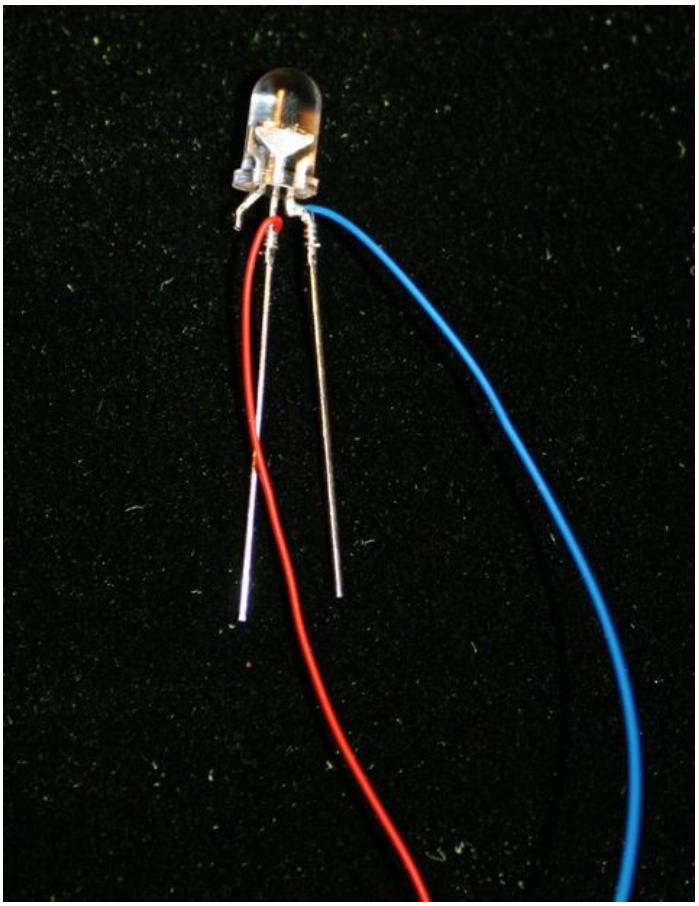
Press the eye stalk on the servo and make sure the assembly fits in the case (if you use a different servo motor--the mounting slot in the case will have to be set up differently).



Step 9:
Add a red wire wrap wire to the center lead of the 7 color led.

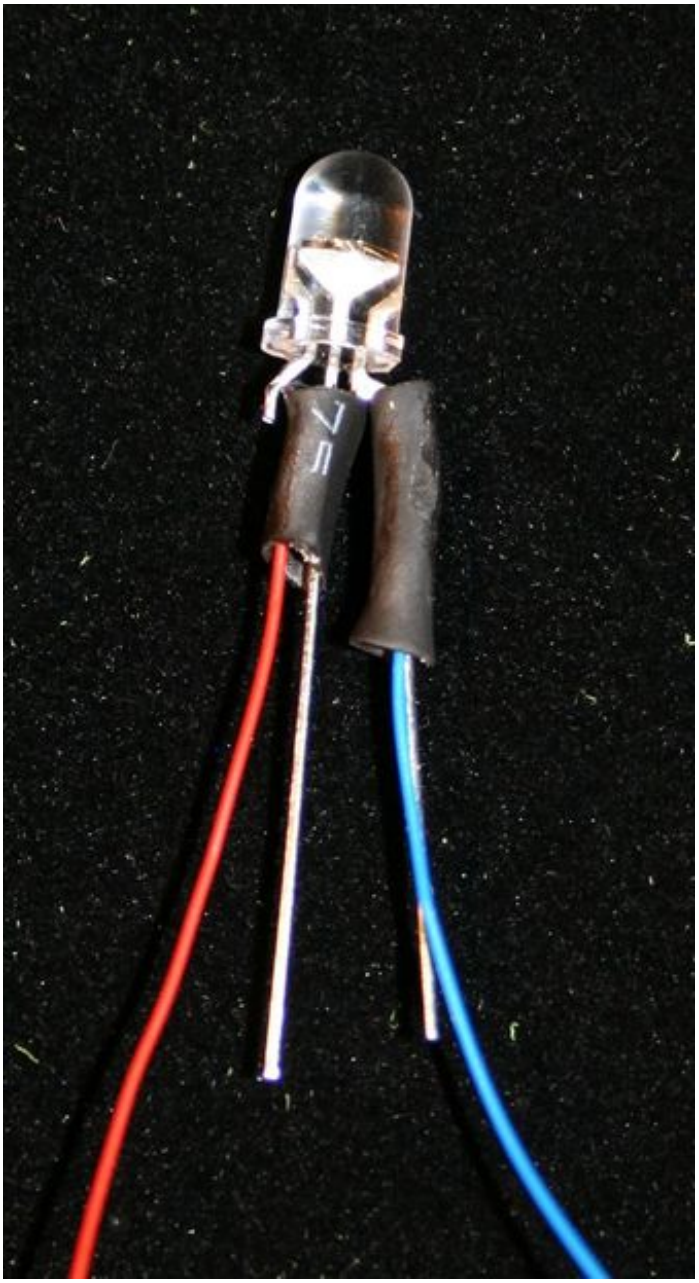


Step 10:
Add a blue wire wrap wire to the lead with a 90 degree bend on the led. Cut the other (angled) lead off.



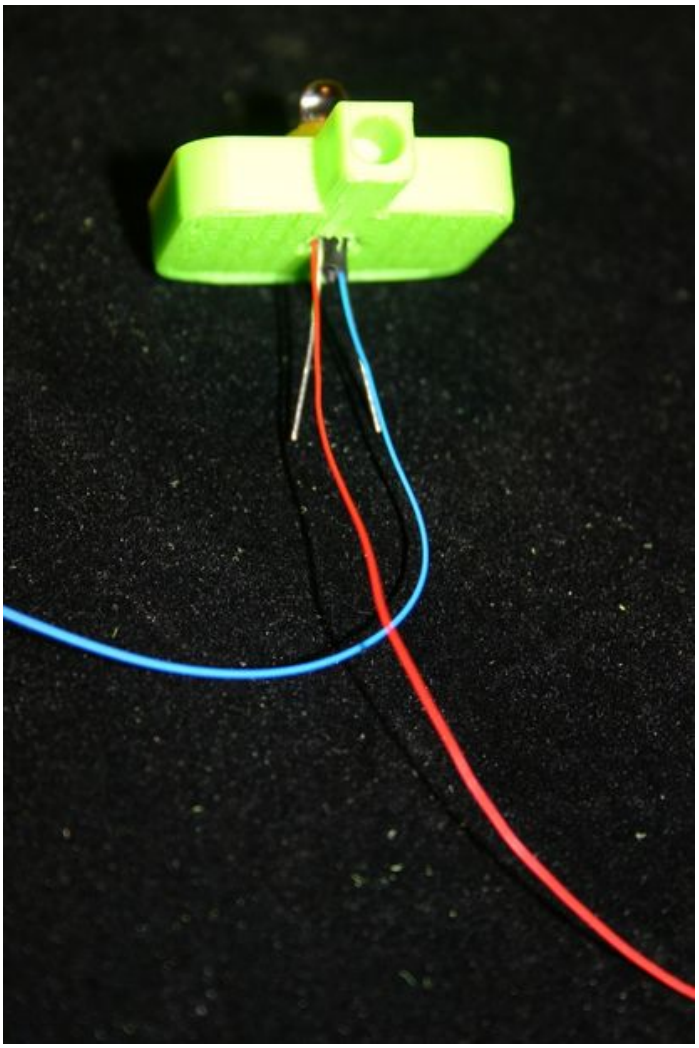
Step 11:

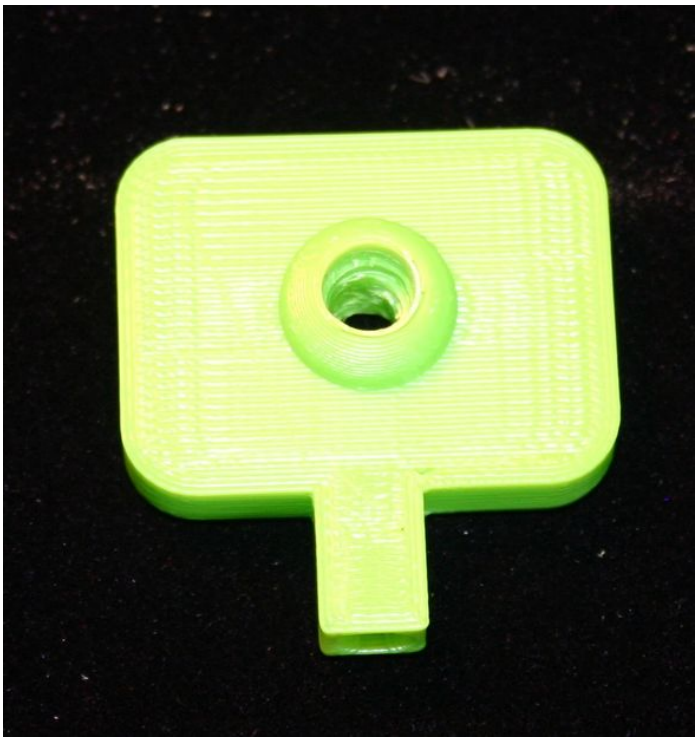
Use heat shrinkable tubing (or electrical tape) to insulate the legs.

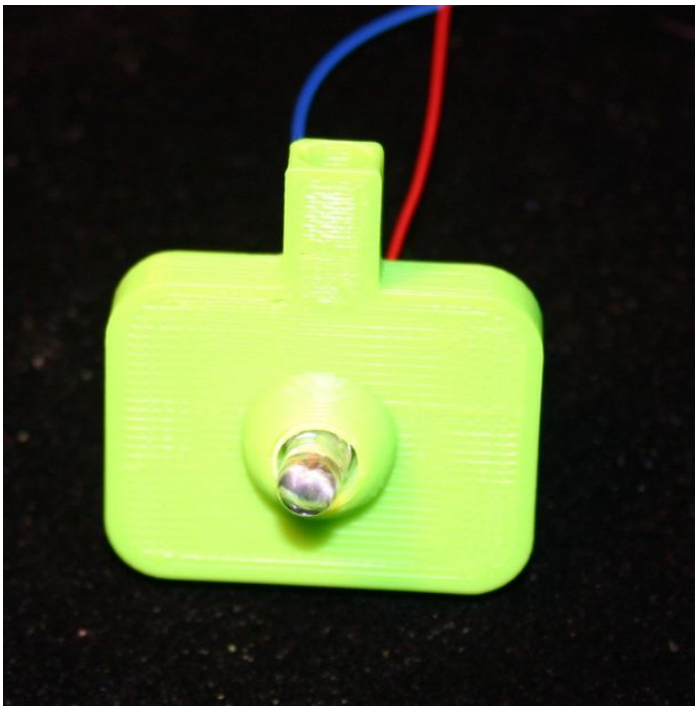


Step 12:

Push the led through the eye stalk.

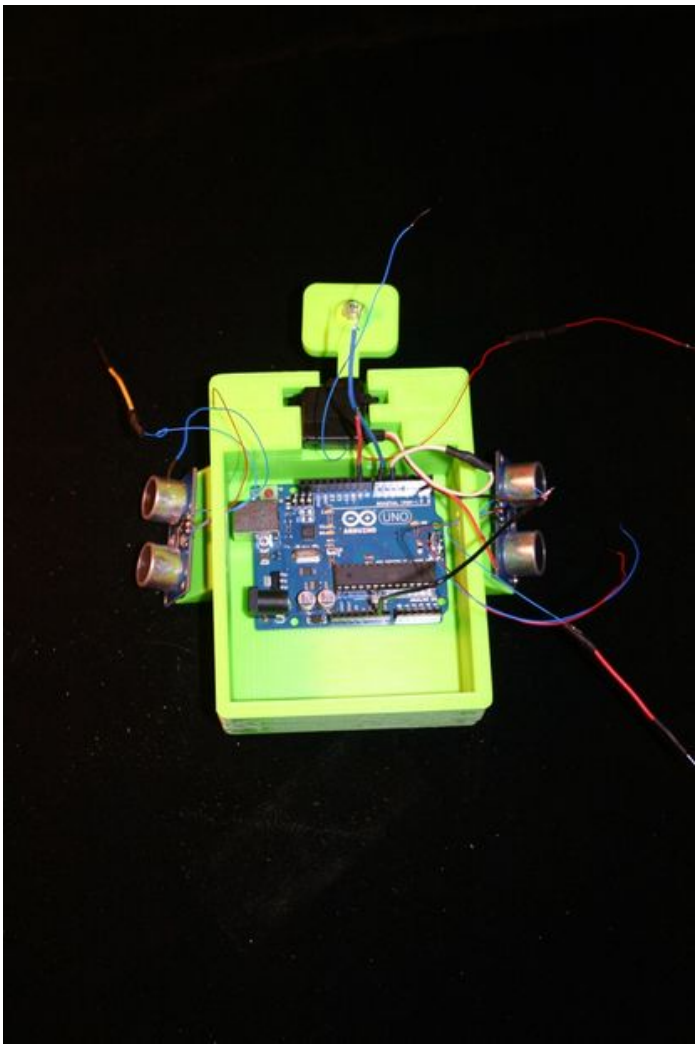






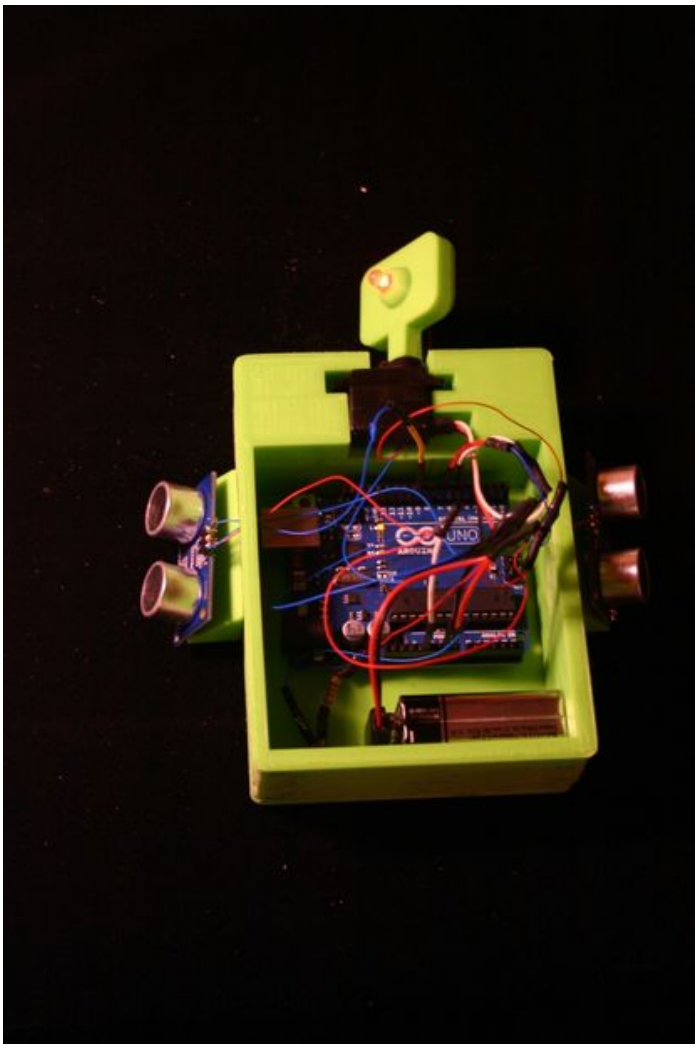
Step 13:
Place double sided tape on the back of the Arduino.

Step 14:
Place the Arduino inside the case, along with the servo motor.



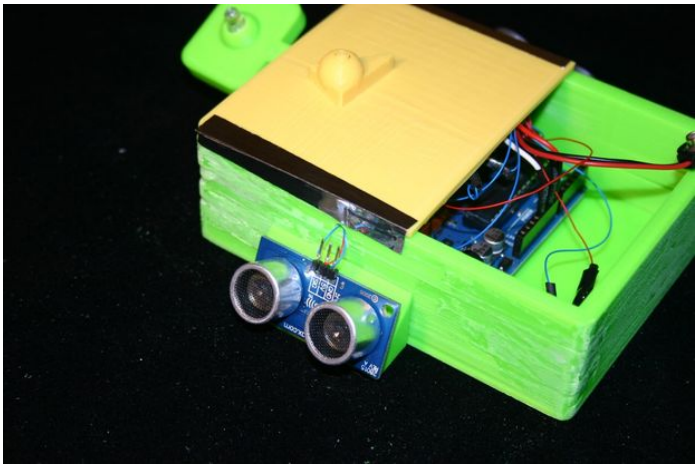
Step 15:

Connect everything together, insert the battery and see if things work.

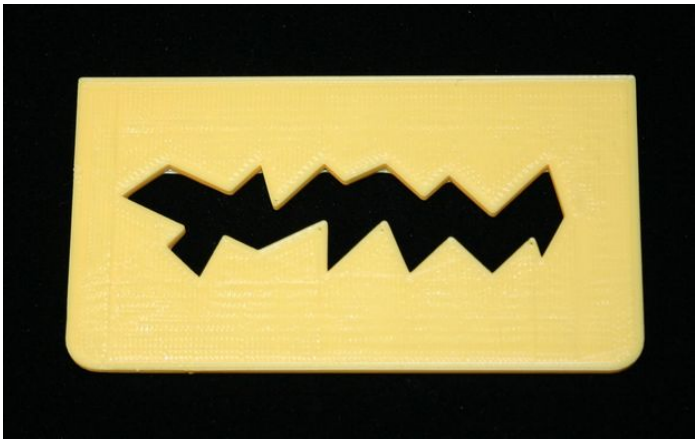


Step 16:

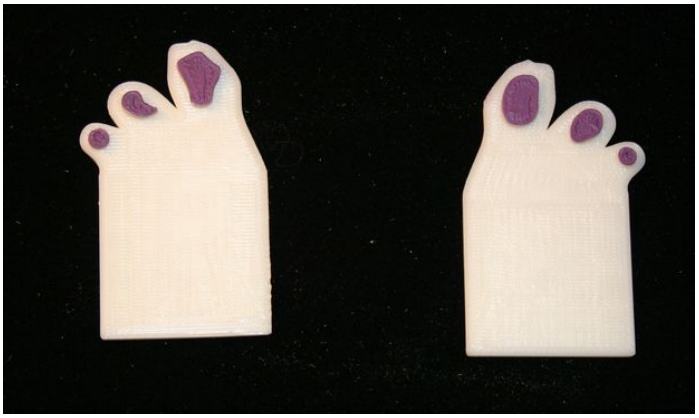
Tape the "nose" (upper piece) onto the body with aluminum duct tape.



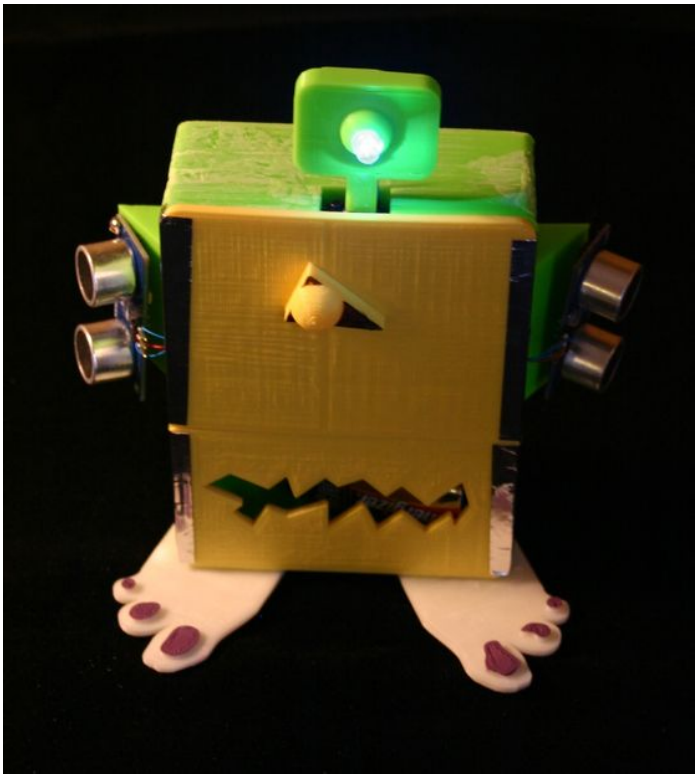
Step 17:
Get the "mouth" and tape it on.



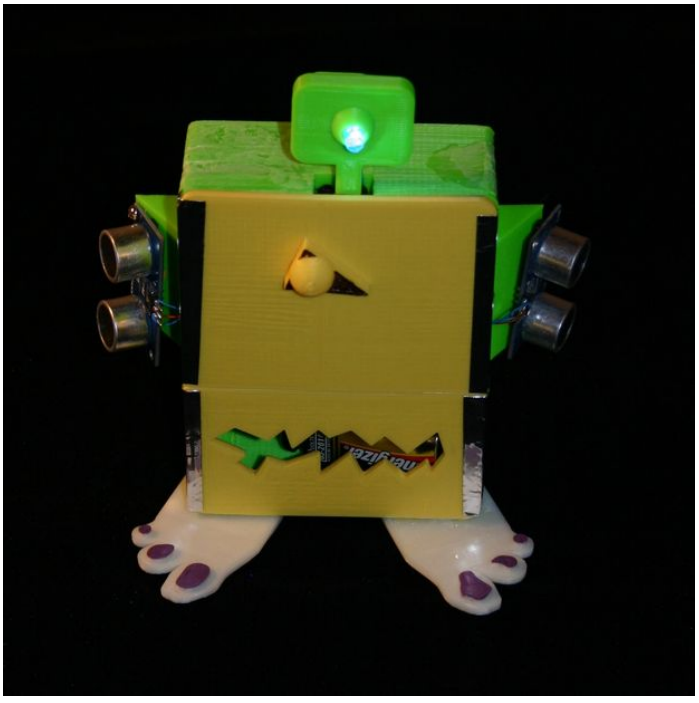
Step 18:
Paint the nails to suit your taste.



Step 19:
Glue the feet to the bottom of the case--take a marker or paint and highlight the "nose."



Step 20:
He's all finished--enjoy!



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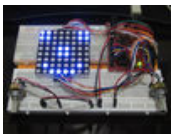

Pong with 8x8 Led Matrix on Arduino (video) by bsoares

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Ping Organ by sketchsk3tch

TurtleDuino Object Avoidance Robot by robdavinci

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Comments

2 comments **Add Comment**

amandaghassaei says: Oct 10, 2012. 11:05 AM **REPLY**

cool project, very life-like! I especially like the 3d printed feet. what did you print this on? do you have any tips to avoid shrinkage cracking on such a large enclosure?

mrigsby says: Oct 10, 2012. 1:20 PM **REPLY**

I printed with a MakerBot Replicator. Set a platform temperature of 110 degrees and close off the sides and front of the machine to prevent drafts (and reduce cracks). I only had the sides closed (paper taped over sides) and the open front may have contributed to the cracks. At 6 hours per print, I wasn't ready to retry on this particular piece :)