I. Arduino Electronic Dice Project with Accelerometer

Here's how it works - pick up the die, shake it, watch while the numbers change until it stops on a number between 1 and 6. It's that simple... It's just like a real die except
it's huge and has circuitry and a 3D printed enclosure.

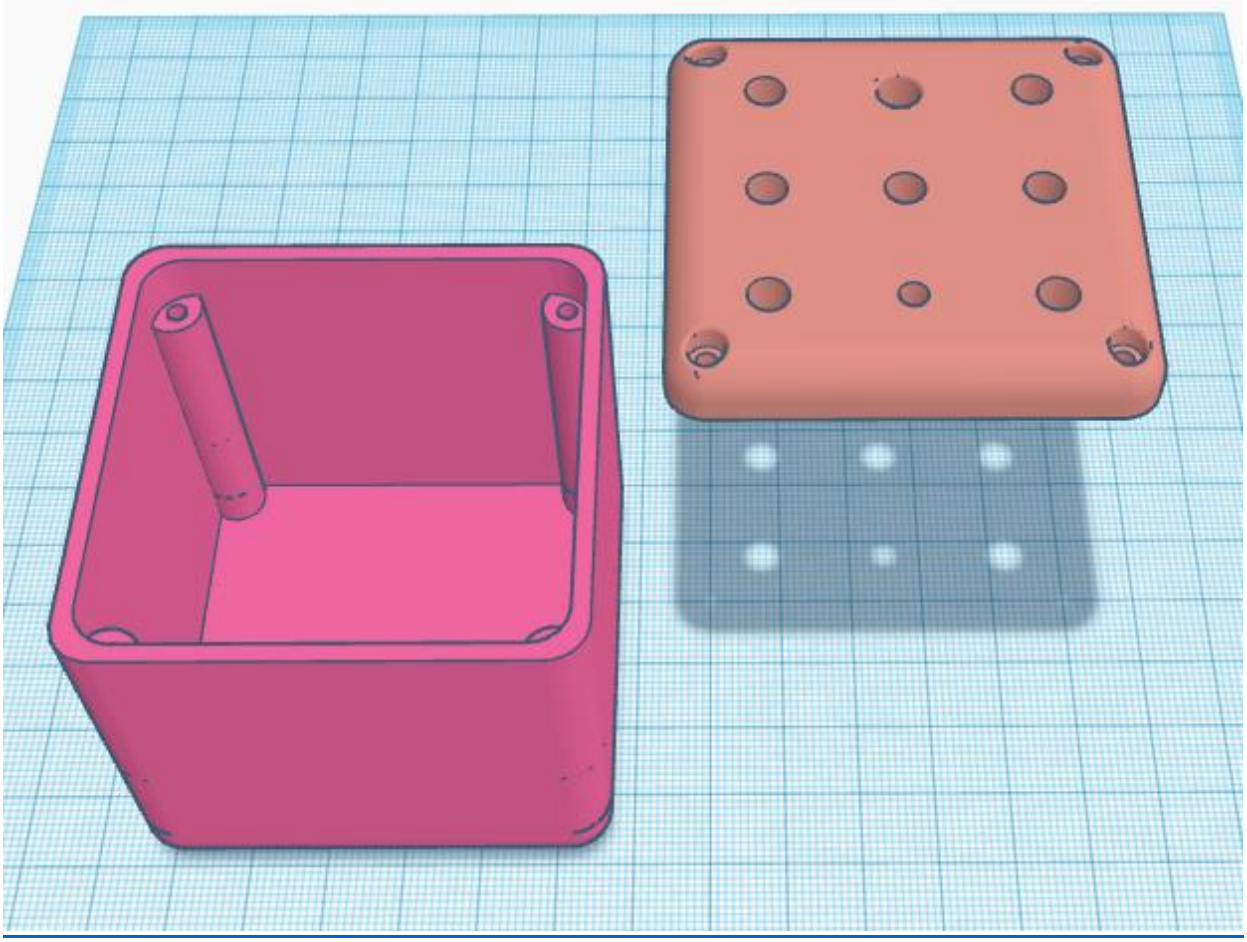


Figure 1 The 3D Printed Enclosure

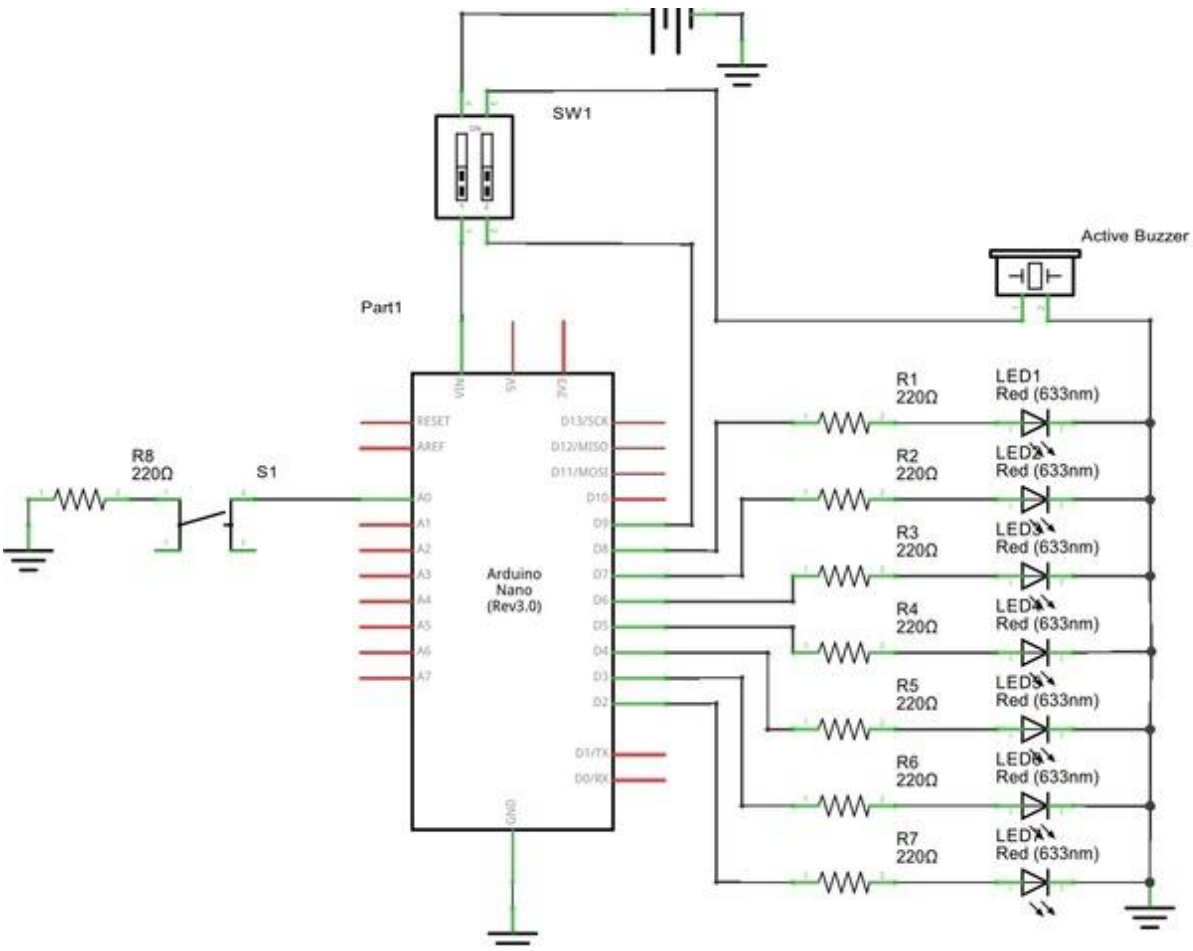
II. Arduino Dice Parts List

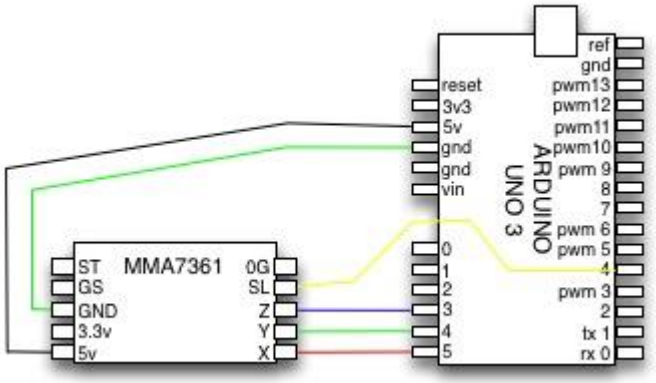
1. Arduino Nano
   ELEGOO for Arduino Nano V3.0, Nano Board CH340/ATmega328P with USB Cable, Com...
   https://www.amazon.com/dp/B071NMBP4S/ref=cm_sw_r_tw_dp_U_x_mKxpCbMRBHE9Y
2. MMA73 accelerometer
   https://moderndevice.com/product/3-axis-accelerometer-module/
3. 7 Leds
4. 7 220 ohm resistors
5. 1 10k ohm resistor
6. Small push button
   MakerSpot 6mm 2 Pin Panel PCB Momentary Tactile Tact Push Button Switch Throu...
   https://www.amazon.com/dp/B06XT3FLVM/ref=cm_sw_r_tw_dp_U_x_7IxpCbW1Y1Z36
7. Piezo Buzzer
   Uxcell a12081600ux0477 12 mm Diameter 5 Piece DC 5V 2 Terminals Electronic Co...
   https://www.amazon.com/dp/B00B0Q4KKO/ref=cm_sw_r_tw_dp_U_x_sGxpCb6CGB98D
8. Li-po charger

5pcs 3.7V 400 mAh 303040 Li-polymer battery Li-Po $10.99 for 5, Model: LP303040/033040, 400mAh, Width 30mm x 3mm
https://www.ebay.com/itm/5pcs-3-7V-400-mAh-303040-Li-polymer-battery-Li-Po-for-bluetooth-mp3-mp4-reader-/253527372480

9. STL file: Original thing: https://www.thingiverse.com/thing:972220

III. Schematic





IV. Components

a. The Arduino Nano

Arduino Nano Pinout Description

Taking this pin-out diagram below as reference, we shall discuss all the functionalities of each and every pin.

http://www.circuitstoday.com/arduino-nano-tutorial-pinout-schematics

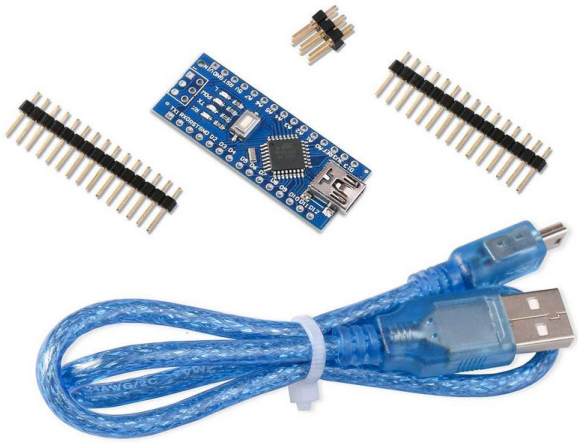
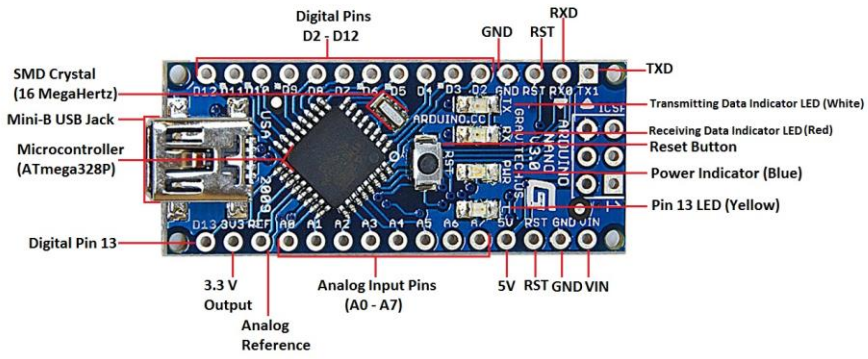
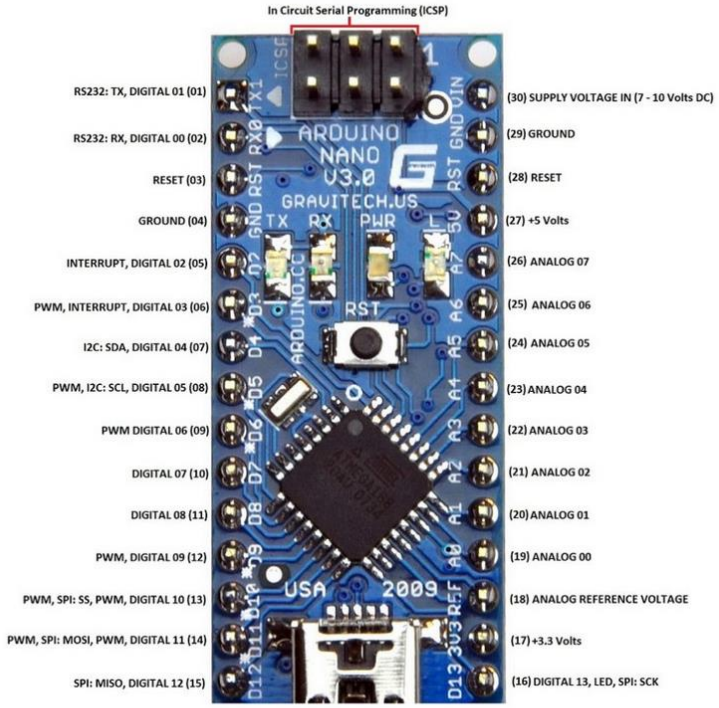


Figure 2 ELEGOO for Arduino Nano V3.0, Nano Board CH340/ATmega328P with USB Cable, Compatible with Arduino Nano V3.0



Arduino Nano V3.0 Pinout

www.CircuitsToday.com

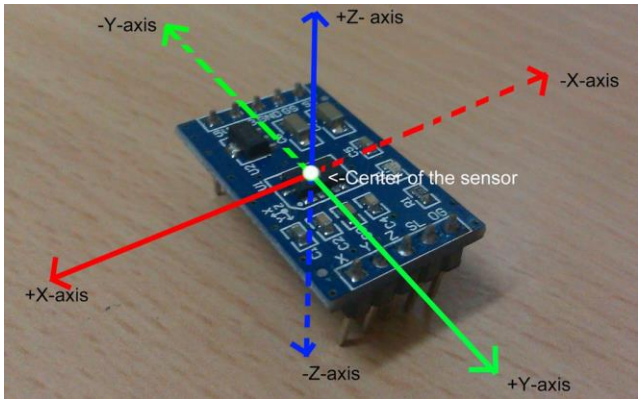


Arduino Nano V3 - Pin Description

www.CircuitsToday.com

V. The MA7361 Acccelerometer

https://moderndevice.com/product/3-axis-accelerometer-module/



VI. The Piezo Transducer

VII. The Code

VI. References

Measuring tilt using an Accelerometer(Part 2):Details of Accelerometer MMA7361L and its board

https://www.youtube.com/watch?v=H4p-usK4tqw

// Arduino Dice

// by Glenn Mossy Dec 13, 2018

// add interupts http://gammon.com.au/interrupts

/* Thingiverse case:

* https://www.thingiverse.com/thing:972220

*/

//Dice functions "sides" derived from edice @ thing:972220.

//Some parts derived from Gus @ pimylifeup.com

//Accelerometer code derived from http://crackeconcept.blogspot.com/2014/11/using-accelerometer-with-ardiuno-with.html

//

https://www.thingiverse.com/thing:972220

https://pimylifeup.com/arduino-dice/

http://crackeconcept.blogspot.com/2014/11/using-accelerometer-with-ardiuno-with.html

Tutorial to make a PCB with Eagle

https://learn.sparkfun.com/tutorials/using-eagle-schematic/all

3D Printed bar graph

https://bikerglen.com/blog/custom-3d-printed-led-bar-graphs/