

MINOS 2014

This and That

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Time

Quad Copters (AGAIN)

6 Axis Sensors

Laser Optical Sensor

CAD / PCB

iOS Programming

Useful or Quirky App's

Last Year This Was Small
34 grm Hubsan X4 Quad Copter £34.99



This Year This Is Smallest
1.5 gm Hubsan Nano Quad Copter £23.82



My New Toy - Blade 350qx

3 Axis Gyro and 3 Axis Accelerometer

Digital Compass

Altitude Barometric Sensor

GPS Hold Function

SMART Mode

Return To Home

GoPro Hero 3 Compatible

All for Only **£279.00**



6 Axis Motion Sensor's

3 Axis Gyros 3 Axis Accelerometers or all 6

All are MEMS (**M**icro**E**lectro**M**echanical**S**ystems)

InvenSense MPU 6050 4 x 4 x 0.9mm

SPI / I2C Interface

Don't seem to suffer as much drift anymore

More LATER

Laser Optical Sensor

PSD Based for Sensor

Laser used for light source

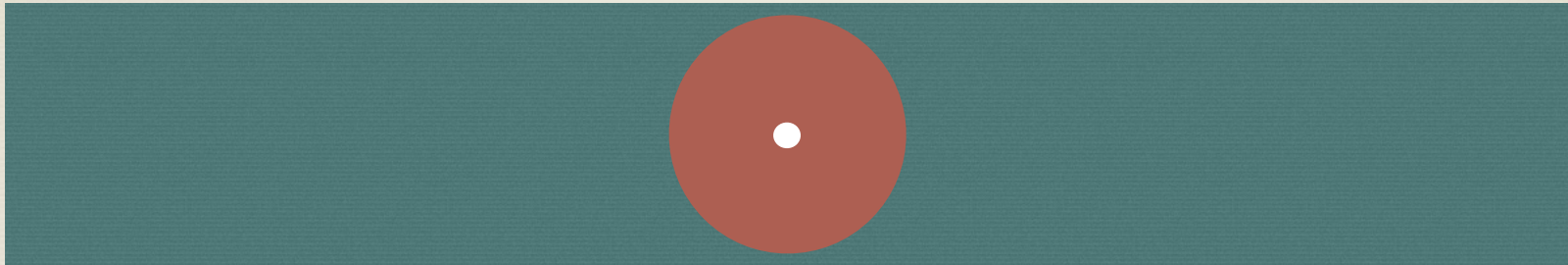
PSD's average the light spot to find centre

When spot starts to cover end of sensor average moves

Also gives very quick end of wall detection

May be even just use light level for NO wall

Laser Optical Sensor



CAD / PCB Design / 3D Printing

123d Design

123d Circuit

- * Circuit design and Breadboard layout
- * PCB Layout
- * Arduino Realtime Simulator
- * Integrates with 123d Design

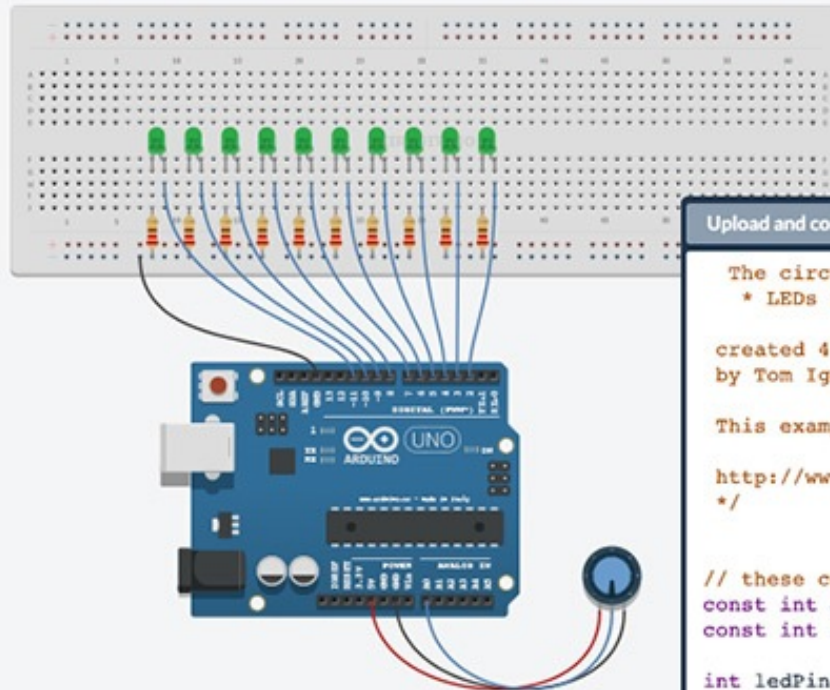
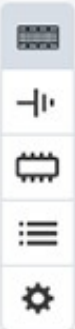
123d Circuit

CIRCUITS.IO / Circuits / LED Bar Graph

Saved



Help



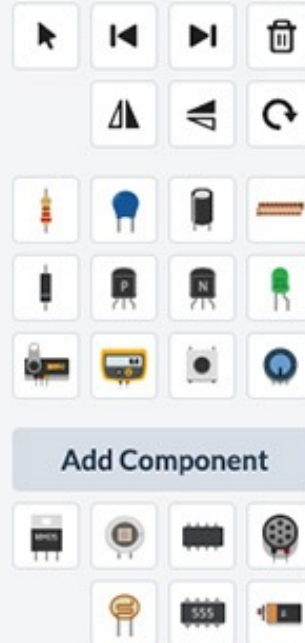
Upload and compile

The circuit:
* LEDs from pins 2 through 11 to ground
created 4 Sep 2010
by Tom Igoe
This example code is in the public domain.
<http://www.arduino.cc/en/Tutorial/BarGraph>
*/

// these constants won't change:
const int analogPin = A0; // the pin that the potentiometer is attached to
const int ledCount = 10; // the number of LEDs in the bar graph

int ledPins[] = {
 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 }; // an array of pin numbers with LEDs

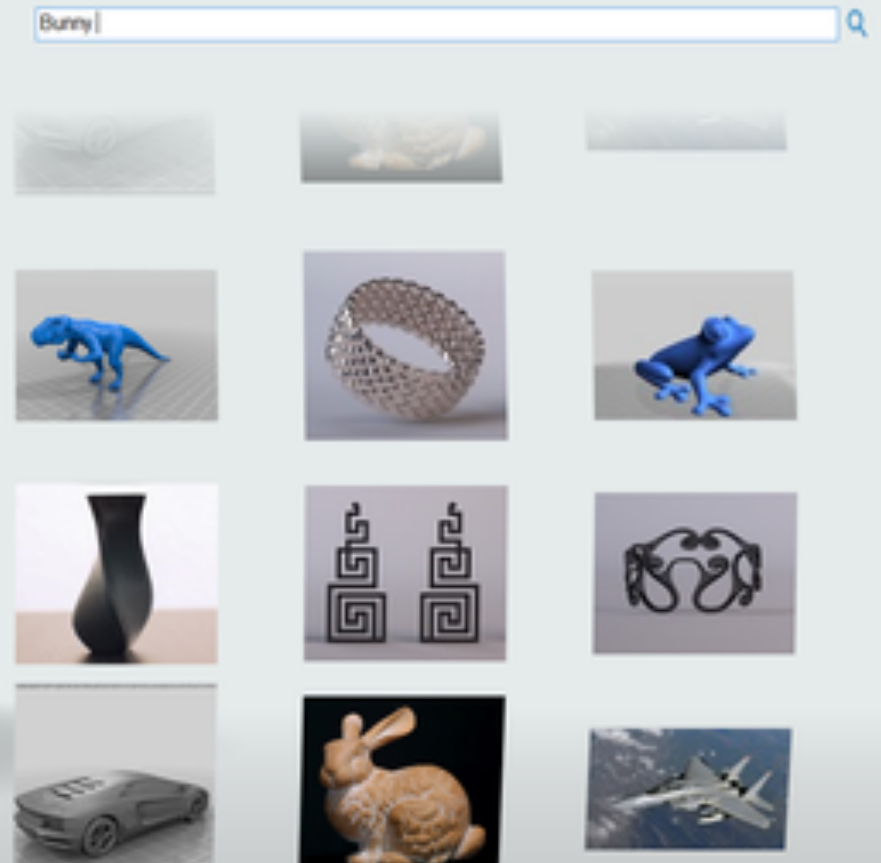
void setup() {
 // loop over the pin array and set them all to output:
 for (int thisLed = 0; thisLed < ledCount; thisLed++) {
 pinMode(ledPins[thisLed], OUTPUT);
 }
}



M3D Micro

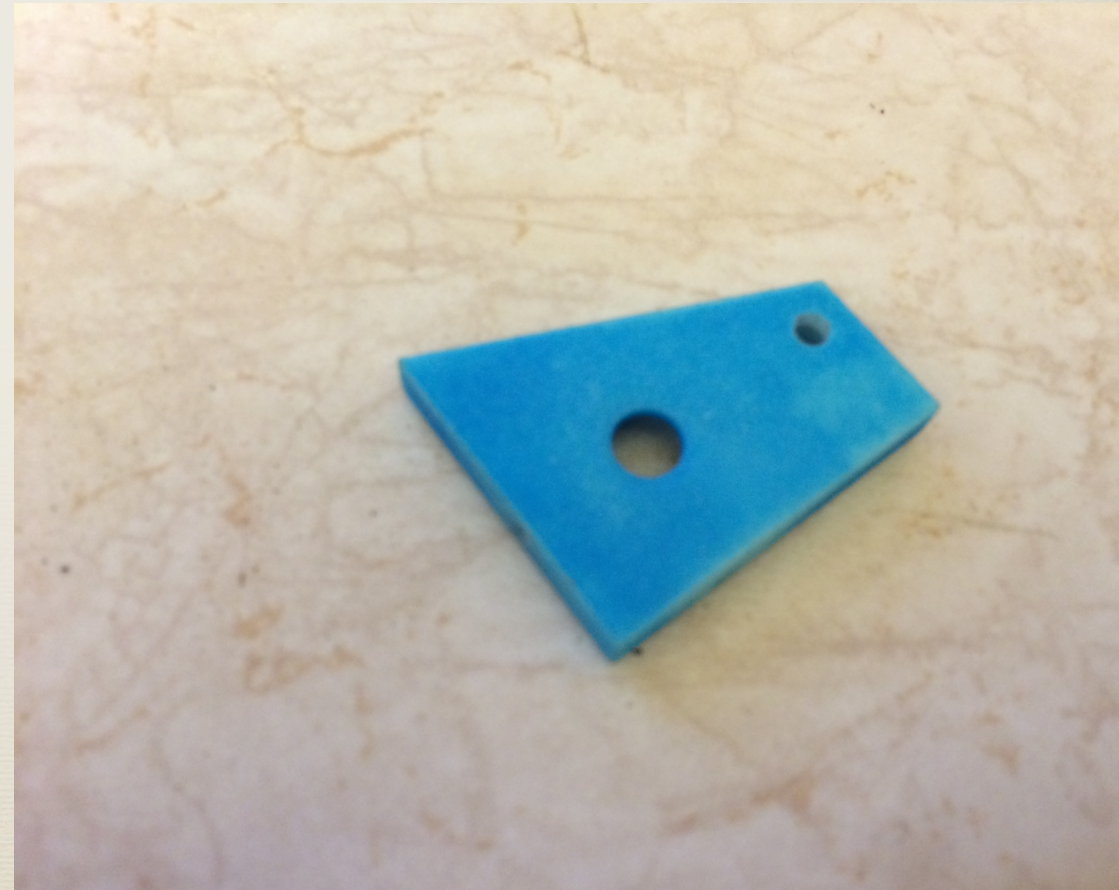
New Kick Starter 3D Printer 100 x 100 x 100mm \$299 Approx

\$50,000 Goal, but **\$2,910,301** Pledged



3d Printing

Colours don't seem to be very permanent



iOS Programming

X Code

- * Free from MAC App Store
- * Can't be written on the target device
- * Not easy to test on a device

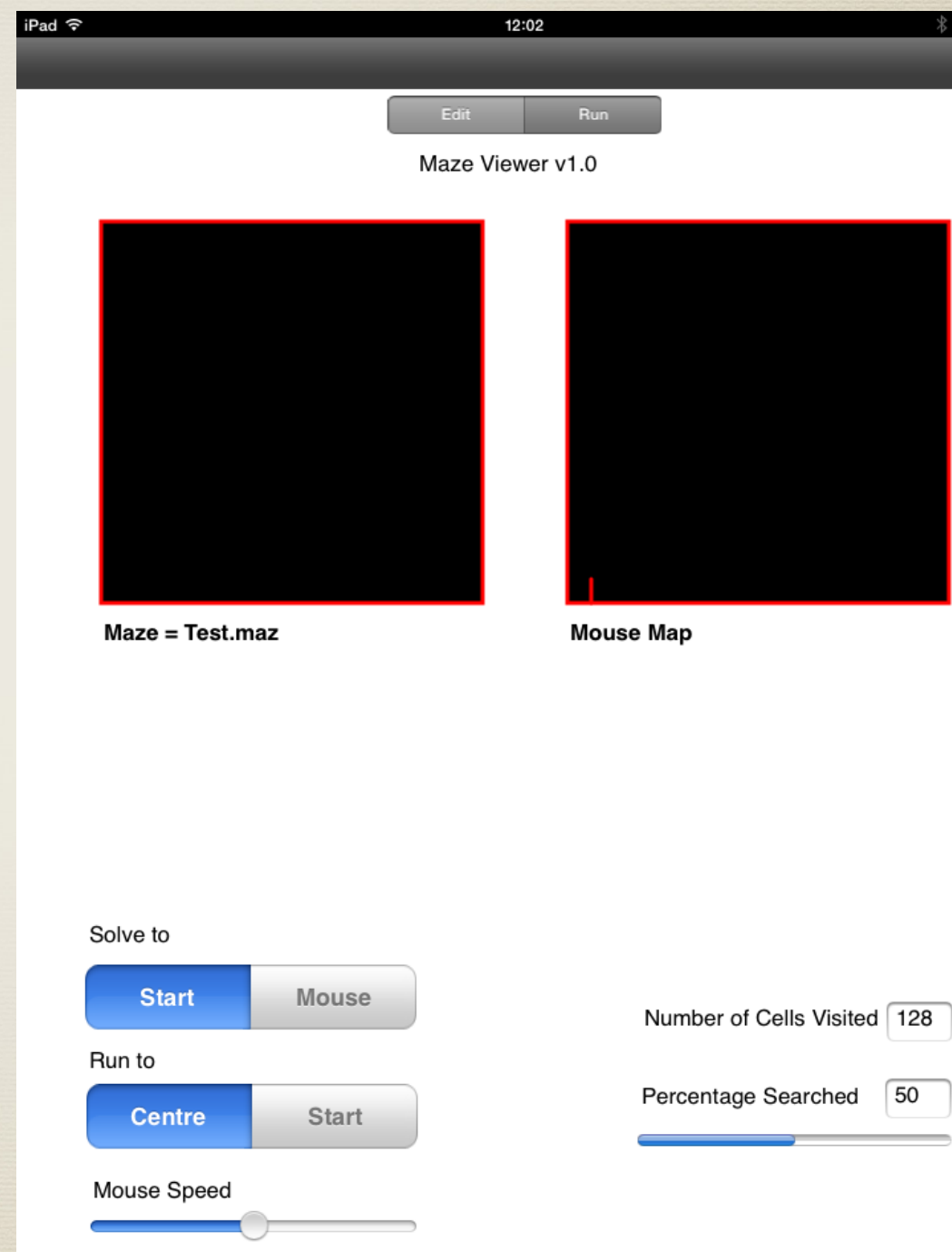
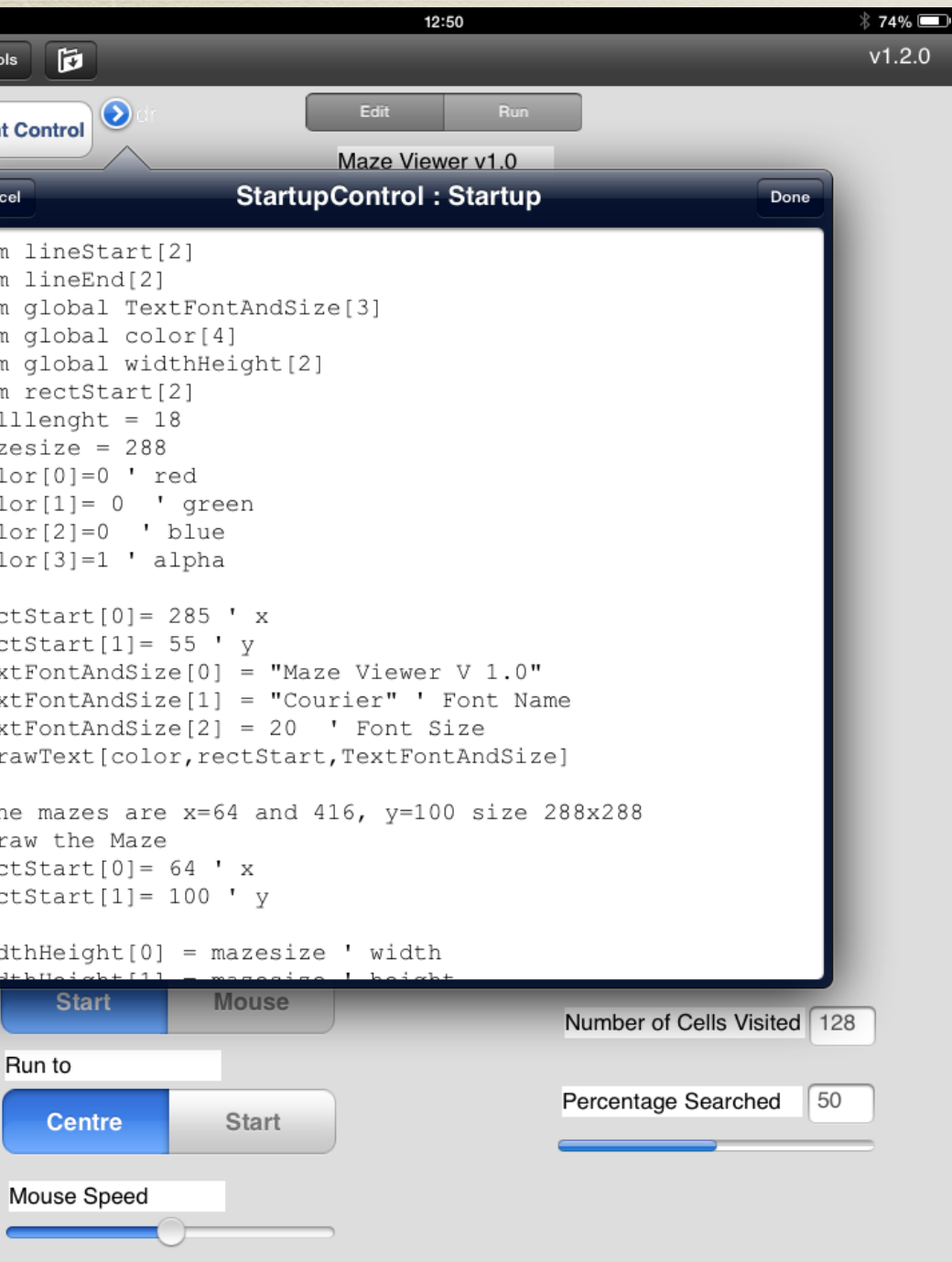
Basic!

- * Free from iOS App Store
- * All iOS devices
- * No GUI, all written in Basic statements on iOS device

VBasic

- * \$7.99 from the iOS App Store
- * iPad Only

IVBasic



Interesting Apps ?

RoomScan

- * Uses 6 Axis sensors
- * Produces room floor plans by inertial navigation
- * Gets room size reasonable correct, about 5%

Ubersense

- * Ultra slow motion app
- * Used by coaches at Winter Olympics
- * May be of use to analyse mouse cornering Etc

**That's
all
Folk's**