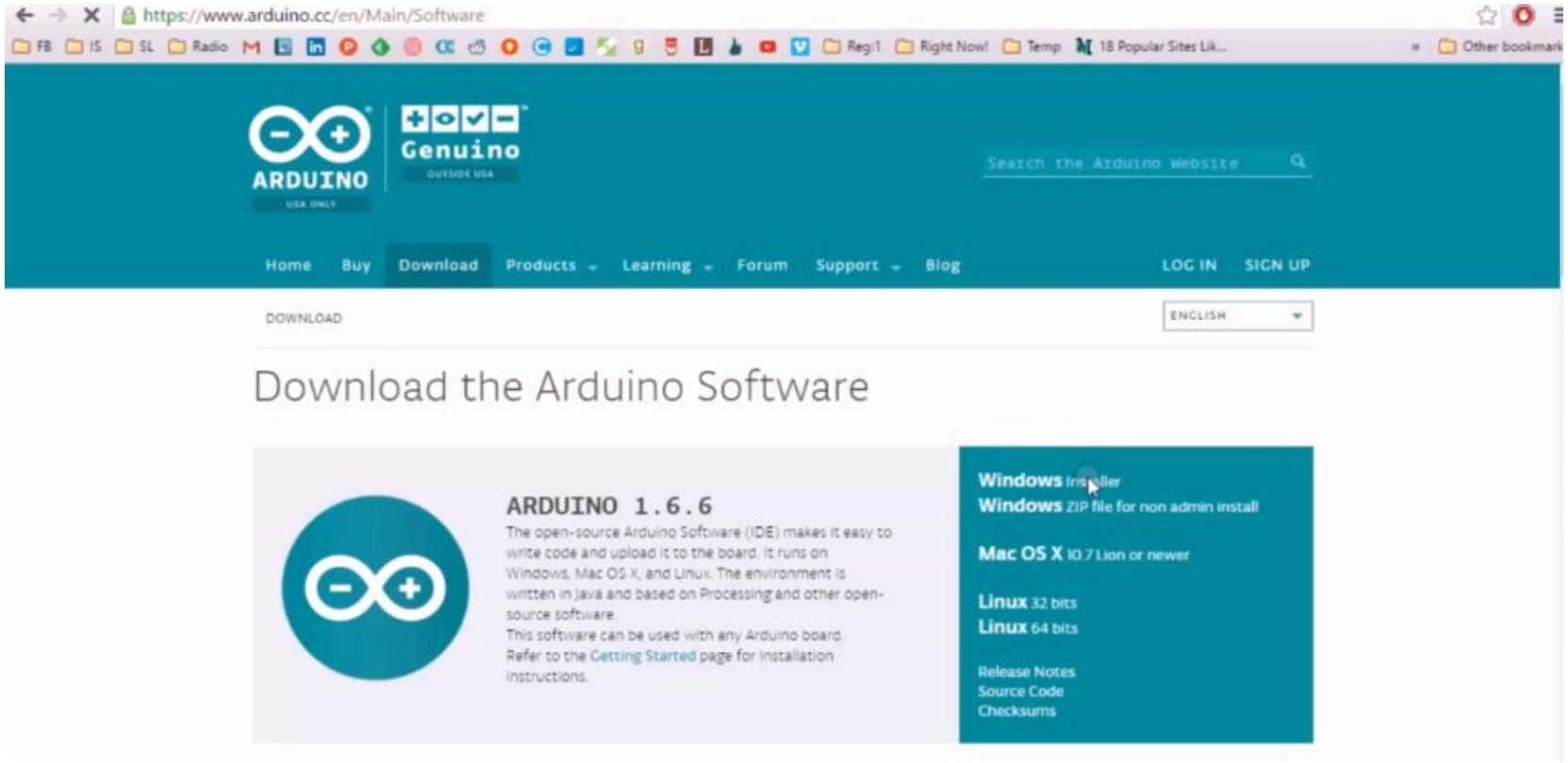
UNIT - 3
Arduino Uno
GPS GSM tracker Project

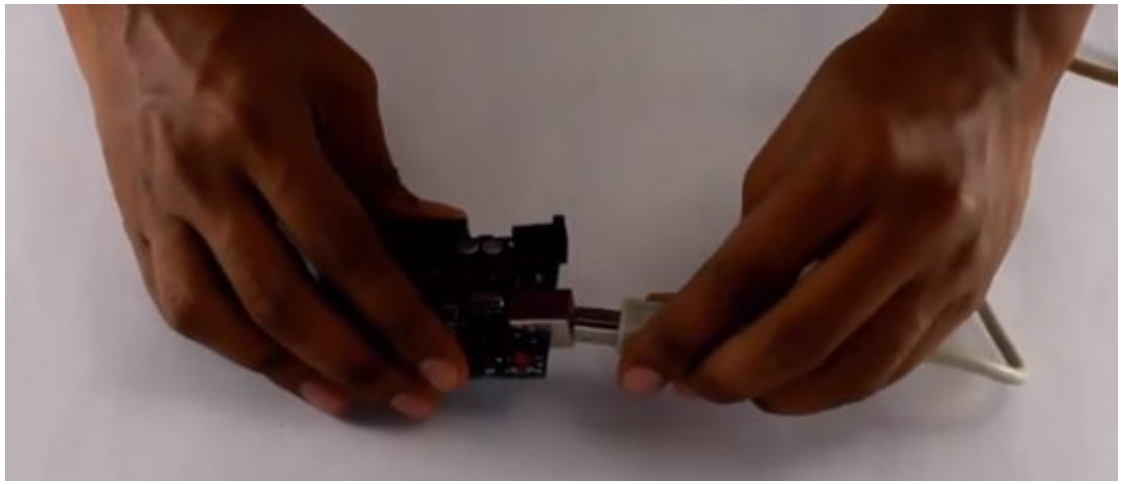
Interfacing Arduino
Connect and Detect Arduino Uno

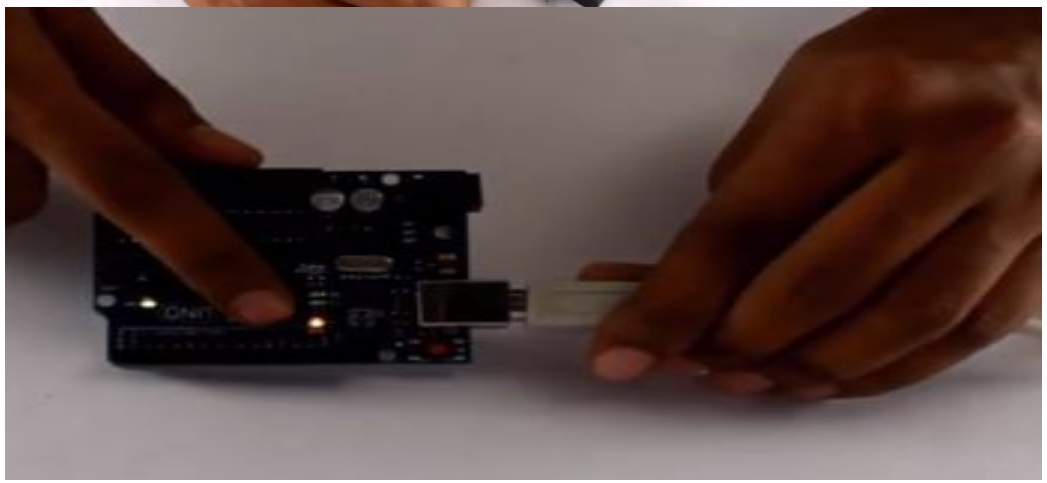
Software Requirements

- **Arduino IDE -** https://www.arduino.cc/en/Main/Software



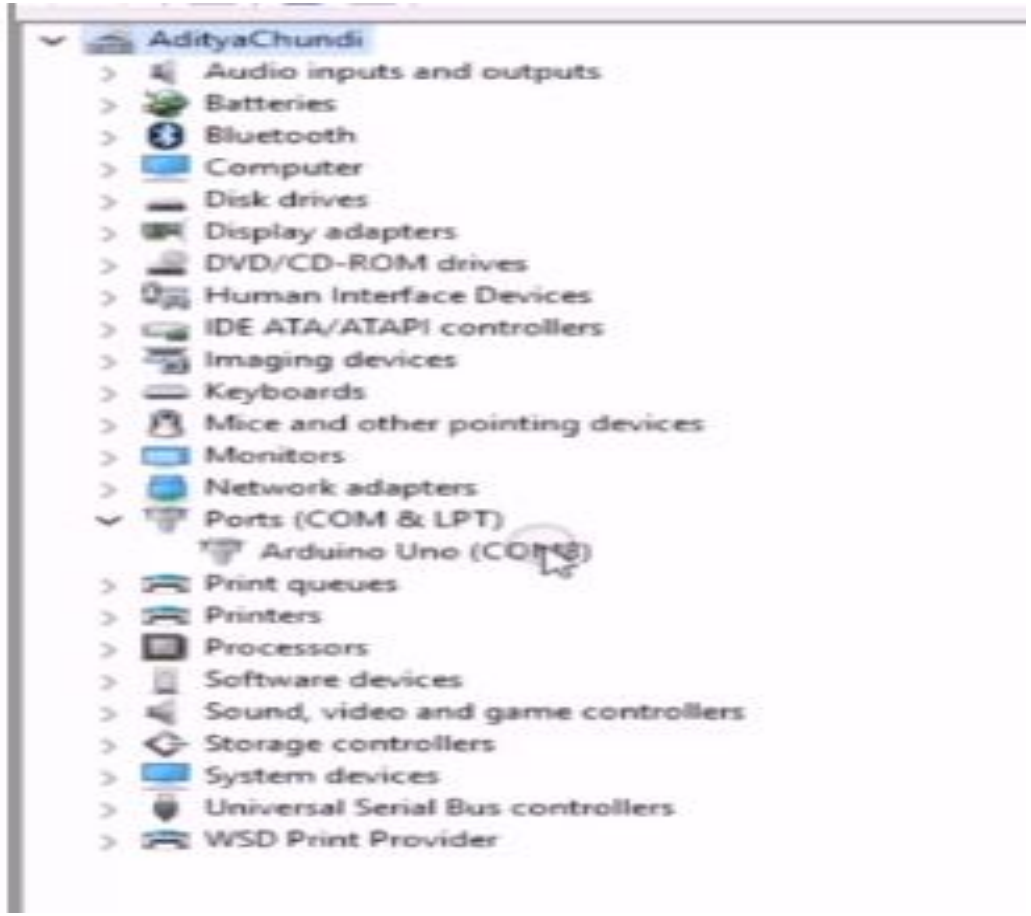
Interfacing Arduino
Connect and Detect Arduino Uno

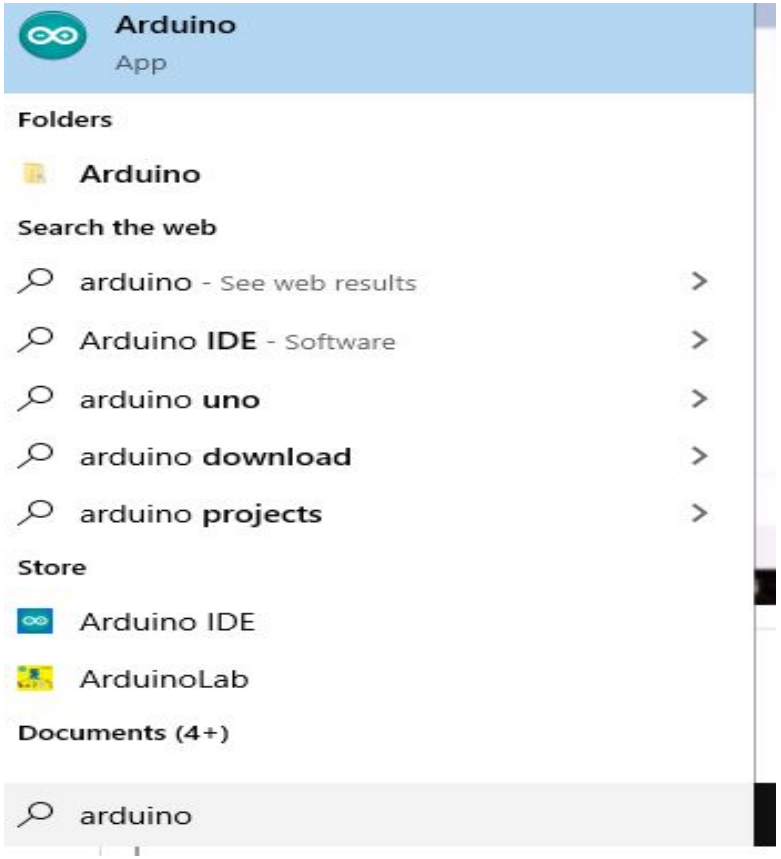




Interfacing Arduino

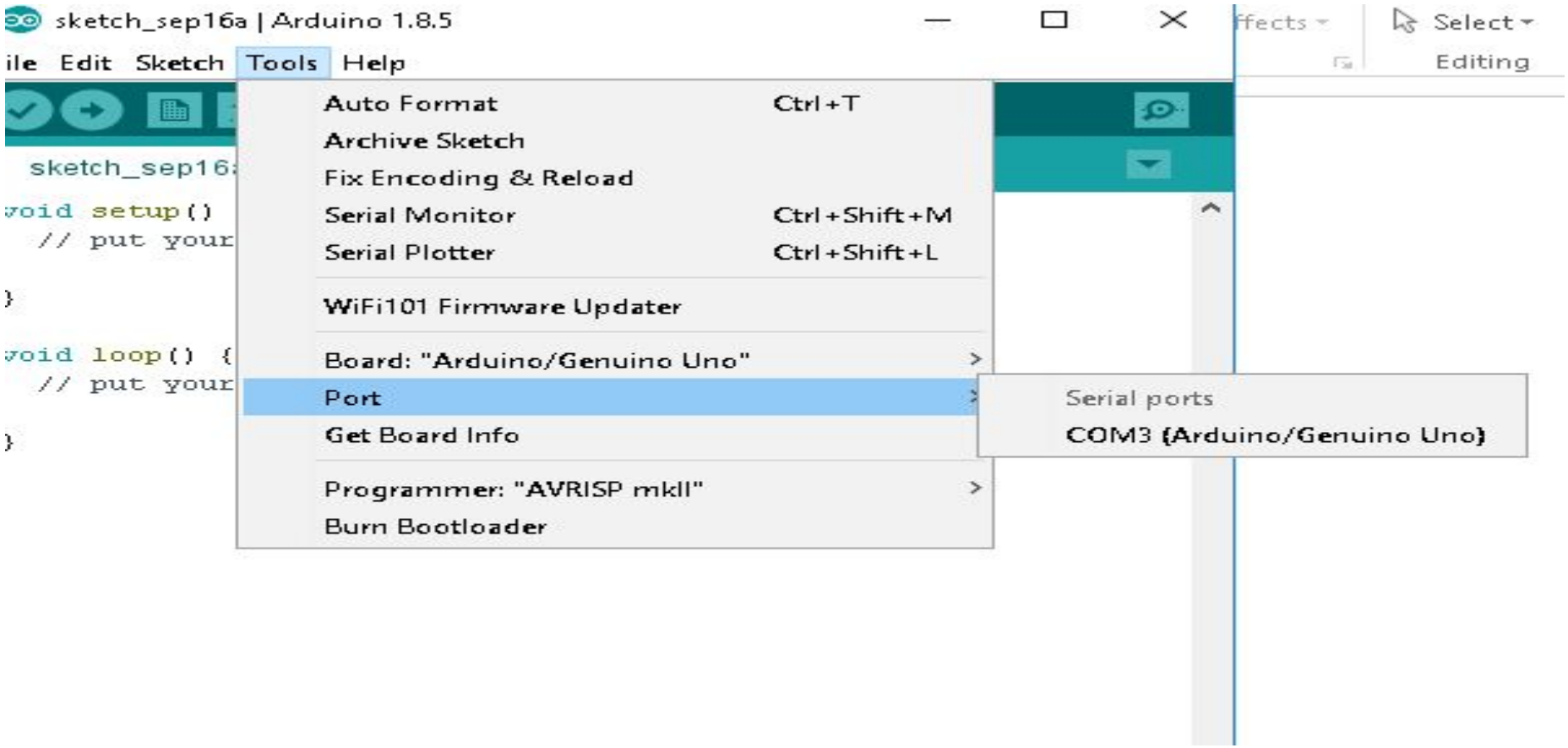
Connect and Detect Arduino Uno



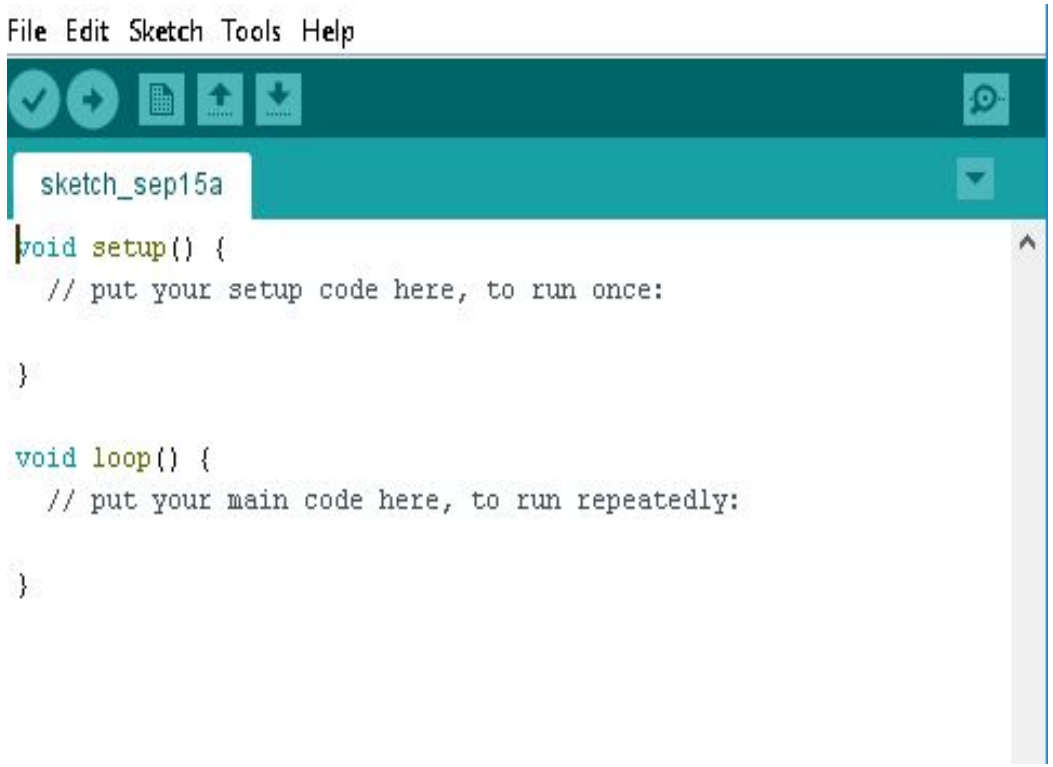


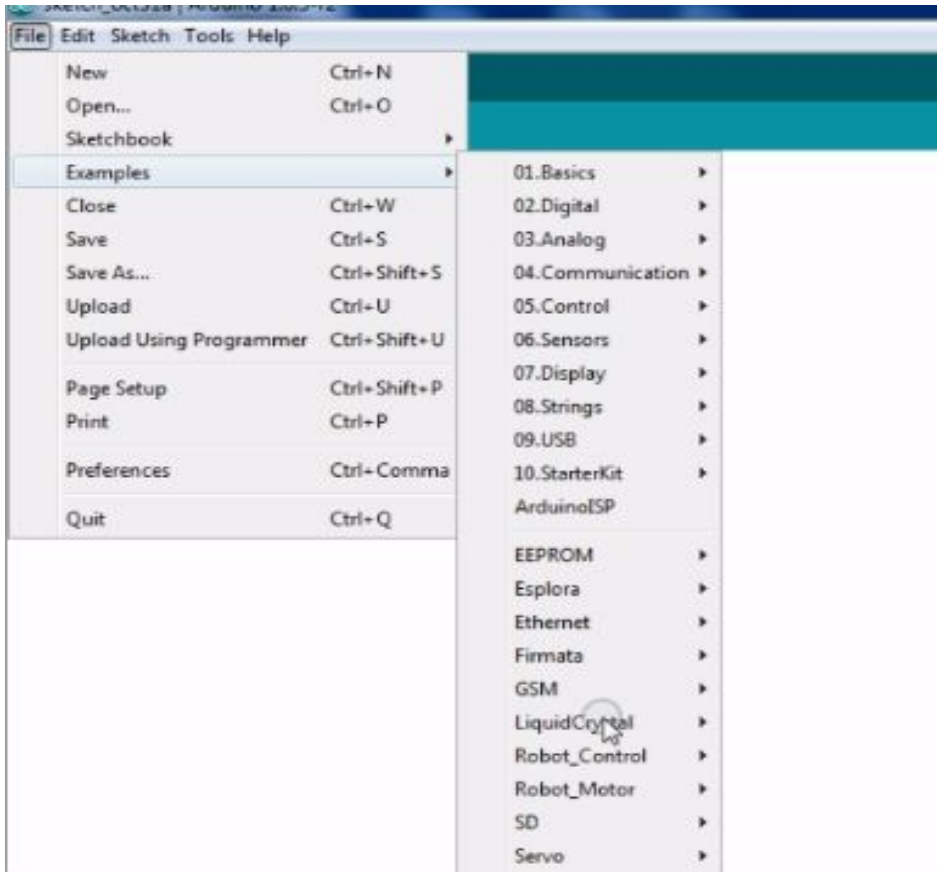
Interfacing Arduino

Connect and Detect Arduino Uno



Arduino IDE


File Edit Sketch Tools Help
sketch_sep15a
void setup() {
// put your setup code here, to run once:
}
void loop() {
// put your main code here, to run repeatedly:
}


File Edit Sketch Tools Help
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Open... Ctrl+O
Sketchbook
Examples
Close Ctrl+W
Save Ctrl+S
Save As... Ctrl+Shift+S
Upload Ctrl+U
Upload Using Programmer Ctrl+Shift+U
Page Setup Ctrl+Shift+P
Print Ctrl+P
Preferences Ctrl+Comma
Quit Ctrl+Q
01.Basics
02.Digital
03.Analog
04.Communication
05.Control
06.Sensors
07.Display
08.Strings
09.USB
10.StarterKit
ArduinoISP
EEPROM
Esplora
Ethernet
Firmata
GSM
LiquidCrystal
Robot_Control
Robot_Motor
SD
Servo

Arduino IDE


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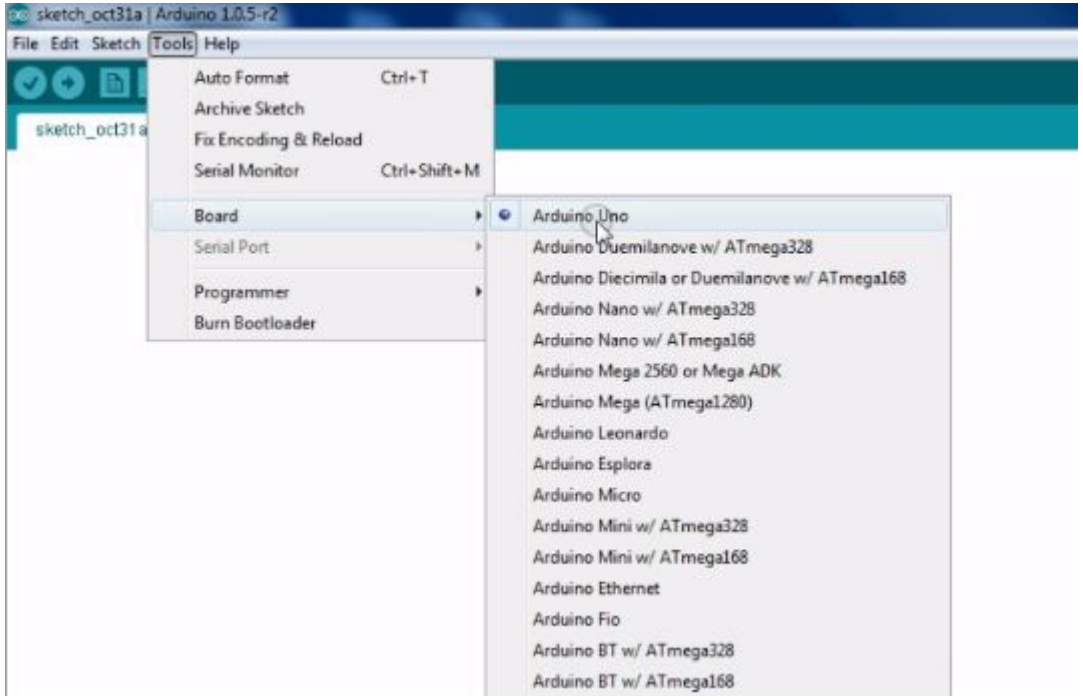
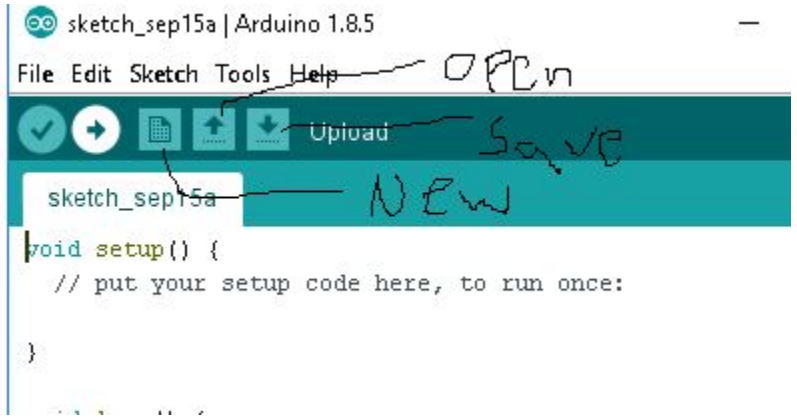
Show Sketch Folder Ctrl+K
Import Library...
Add File...


sketch_oct31a | Arduino 1.0.5-r2
File Edit Sketch Tools Help
Auto Format Ctrl+T
Archive Sketch
Fix Encoding & Reload
Serial Monitor Ctrl+Shift+M
Board
Serial Port
Programmer
Burn Bootloader
Arduino Uno
Arduino Duemilanove w/ ATmega328
Arduino Diecimila or Duemilanove w/ ATmega168
Arduino Nano w/ ATmega328
Arduino Nano w/ ATmega168
Arduino Mega 2560 or Mega ADK
Arduino Mega (ATmega1280)
Arduino Leonardo
Arduino Esplora
Arduino Micro
Arduino Mini w/ ATmega328
Arduino Mini w/ ATmega168
Arduino Ethernet
Arduino Fio
Arduino BT w/ ATmega328
Arduino BT w/ ATmega168

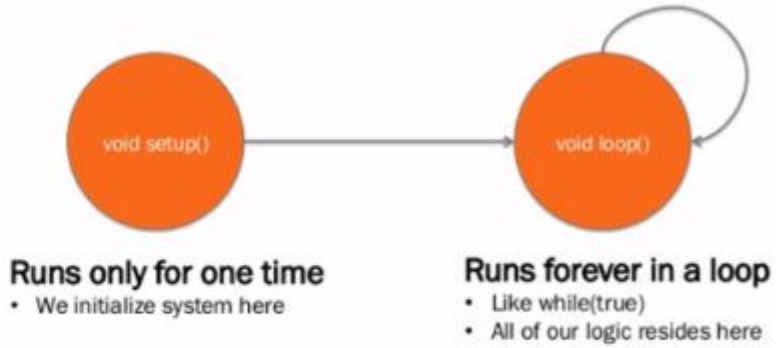
Arduino IDE


sketch_sep15a | Arduino 1.8.5
File Edit Sketch Tools Help
Verify
sketch_sep15a
void setup() {
// put your setup code here, to run once:
}
void loop() {
// put your main code here, to run repeatedly:
}


sketch_sep15a | Arduino 1.8.5
File Edit Sketch Tools Help
OPEN
Upload
Save
sketch_sep15a
NEW
void setup() {
// put your setup code here, to run once:
}

Structure of Arduino Programming

- Code for your Arduino are known as sketches
- They are written in C++
- Every sketch needs two “void” type functions,
  - Setup( )
  - Loop( )
- “void” functions do not return a value



Basic Sketch

```
void setup( )
{

}

void loop( )
{

}
```

Simple program (Control the LED)

Write an Arduino Program to control the On-board LED connected to Pin 13

Description - setup() method

In setup method, we want to set the ledPin to output mode.

We can do this by using a special function "pinMode( )"

"pinMode( )" takes two variables, the first the pin number, and second, whether it is an input pin or an output pin

Since we want to send an output to the LED, we will set it to a constant called OUTPUT

```
Int ledPin = 13

void setup( )
{
        pinMode(ledPin, OUTPUT);
}

void loop( )
{

}
```

Simple program (Control the LED)

Write an Arduino Program to control the On-board LED connected to Pin 13

Description - loop() method

In the loop, we will switch off the LED

This is done by using a method "digitalWrite( )"

This also takes two values, pin number and the level, "HIGH" on state or "LOW" off state

```
Int ledPin = 13;

Void setup( )
{
        pinMode( ledPin,OUPTUT);
}

void loop( )
{
        digitalWrite(ledPin, LOW);
```

Simple program (Control the LED)

Write an Arduino Program to control the On-board LED connected to Pin 13 - Compiling the code and upload it to Arduino

ledblink

```
//int led =13;
void setup() {
  pinMode(13,OUTPUT);
}

void loop() {

  digitalWrite(13,HIGH);

}
```

Write a Program to Blink the LED of Arduino UNO