Bangalore

Interfacing Bluetooth with Arduino

25.07.2014

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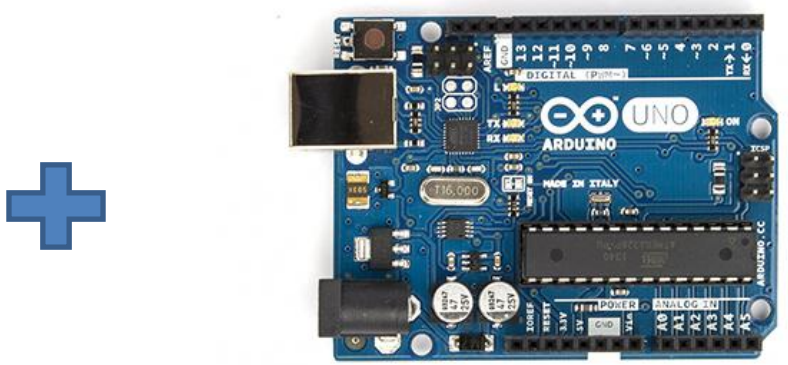
Wireless Applications With Bluetooth



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Demo !

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Bangalore HC - 05

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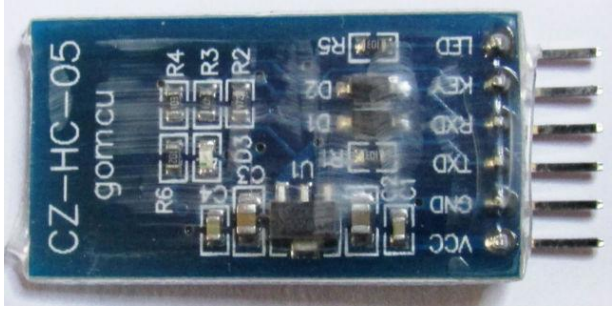
- ✓Easily available
- ✓Cheap
- ✓Transparent
- ✓Configurable
- ✓UART



Bangalore HC – 05 Configuration

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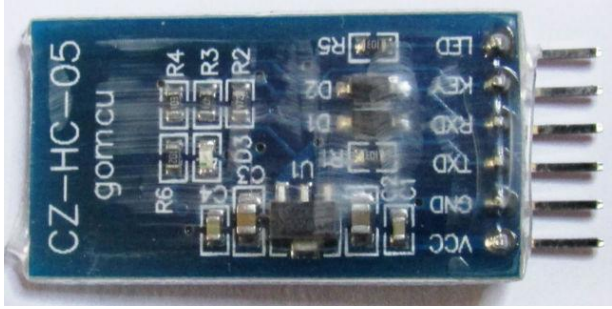
- ✓Slave mode by default
- ✓PIN is 0000 or 1234
- ✓Configurable over AT
- ✓Can act as Master, search for specific devices
- ✓Serial Port Profile



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System Overview

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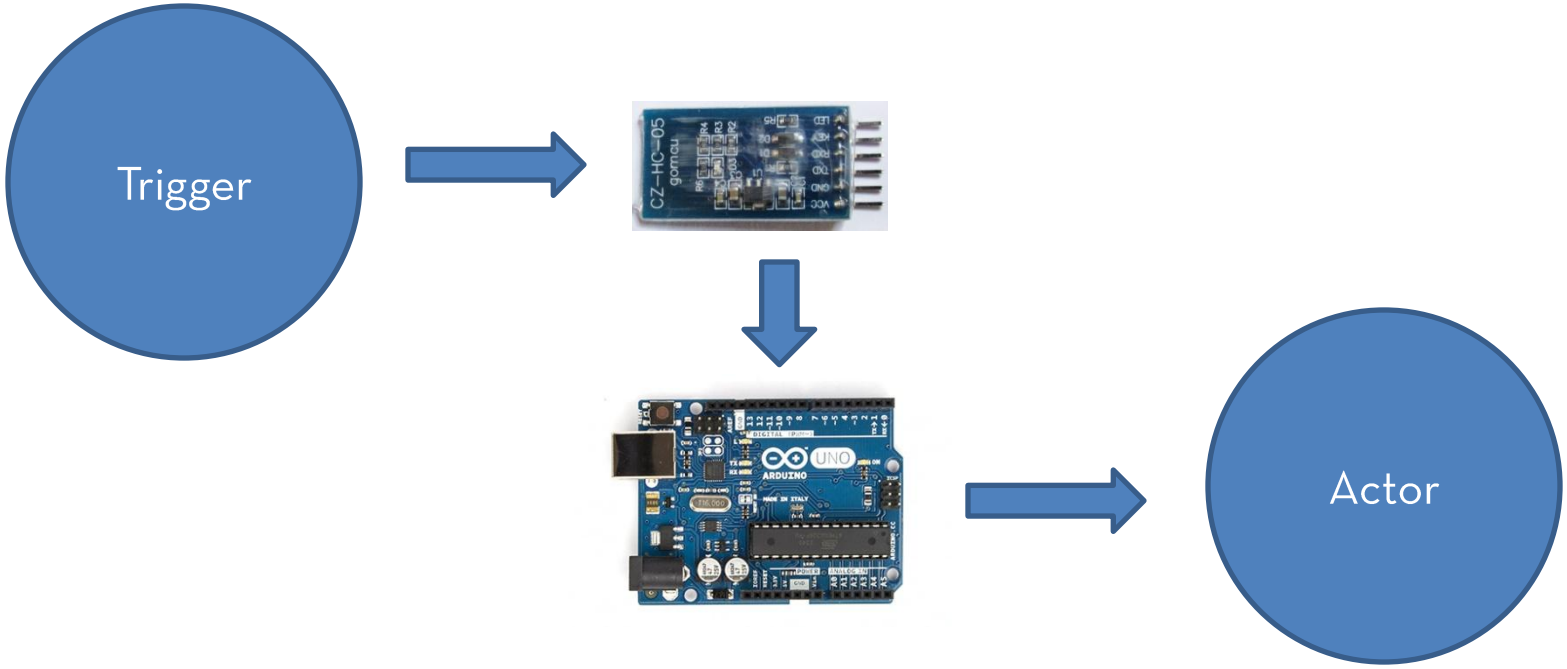

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Connecting to Arduino

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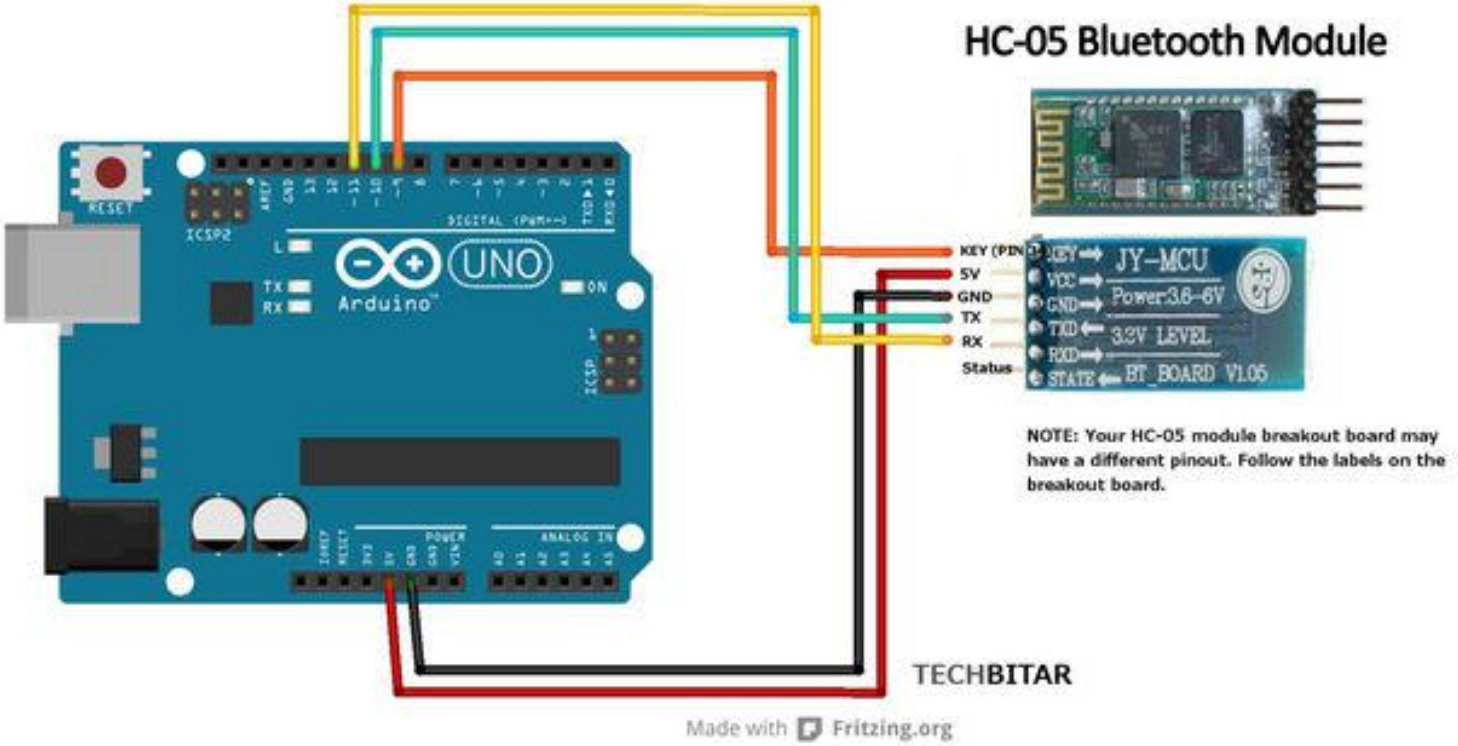

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Demo Walkthrough

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- ✓Pair Bluetooth to your device
- ✓Use “socket programming” with Bluez to create a Bluetooth socket
- ✓Type message with keyboard
- ✓Send message over a Bluetooth socket
- ✓Message is received and stored
- ✓The received characters are looked up, one at a time
- ✓The necessary signaling for each character is generated

Bangalore Arduino Code

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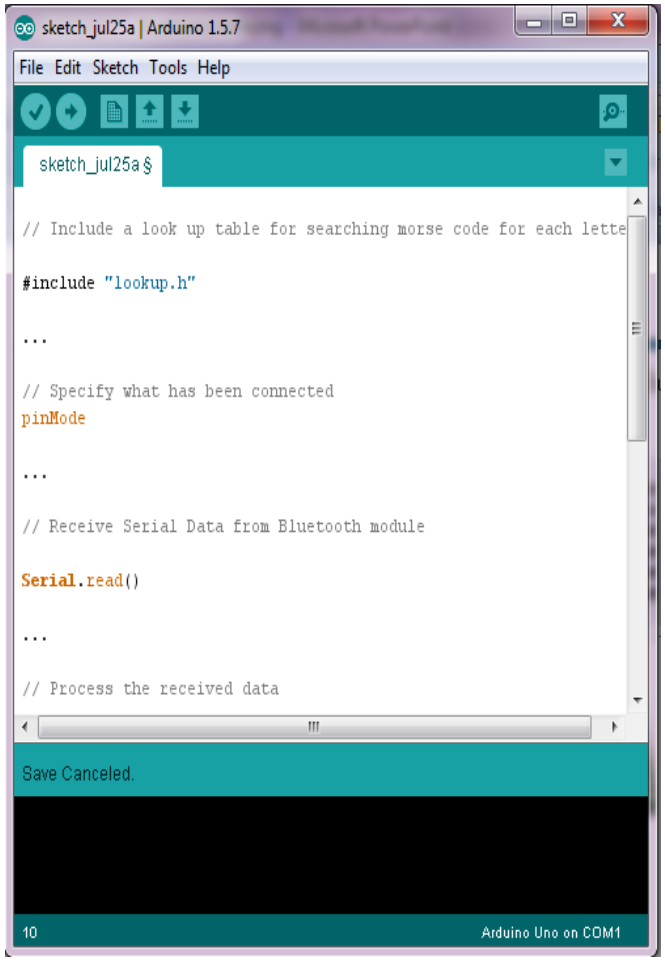

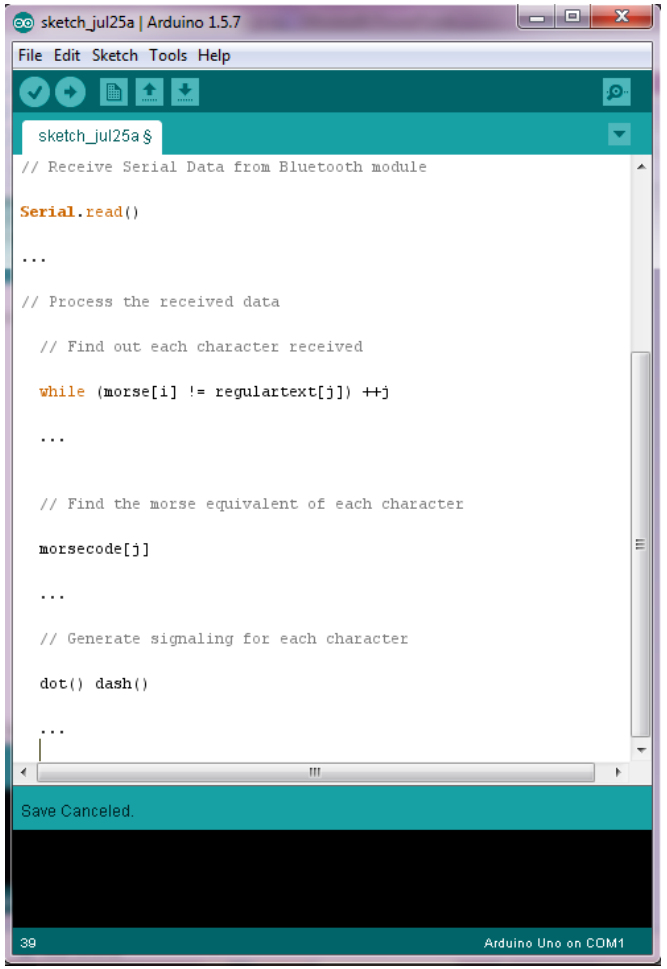

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Application Code

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- ✓C
- ✓C++
- ✓Python
- ✓Java
- ✓Visual Studio
- ✓MATLAB

```
import bluetooth
bd_addr = "00:12:10:23:10:18"

target_name = "HC-05"
target_address = None

nearby_devices = bluetooth.discover_devices()

for bdaddr in nearby_devices:
    if target_name == bluetooth.lookup_name( bdaddr ):
        target_address = bdaddr
        break

if target_address is not None:
     print "found target bluetooth device with address ",
target_address
     port = 1
     sock=bluetooth.BluetoothSocket( bluetooth.RFCOMM )
     sock.connect((target_address, port))
     while True:
          try:
              sock.send(str.lower(raw_input()+"\n"))
          except:
               print "Closing connection"
               sock.close()
               break
else:
     print "Could not find target bluetooth device nearby"
```

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- ✓Remote (mobile / computer) controlled :
  - ✓Robot
  - ✓Coffee machine
  - ✓Lights
  - ✓Music
  - ✓Morse code generator
- ✓Sensor network (Temperature logger)
- ✓Door unlocker
- ✓Proximity door unlocking

Resources

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✓Python Code
https://github.com/Arduino-IN/demos/tree/master/Bluetooth-Interfacing/Python-Code

✓Arduino Code
https://github.com/Arduino-IN/demos/tree/master/Bluetooth-Interfacing/Arduino-Code

✓HC-05 Datasheet
http://www.electronicaestudio.com/docs/istd016A.pdf

✓Bluetooth programming
http://people.csail.mit.edu/albert/bluez-intro/index.html

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Thank You !