# Hardware component

**1. nRF24L01 Module**

* 2.4GHz RF transceiver Module
* Operating Voltage: 3.3V
* Nominal current: 50mA
* Range : 50 – 200 feet
* Operating current: 250mA (maximum)
* Communication Protocol: SPI
* Baud Rate: 250 kbps - 2 Mbps.
* Channel Range: 125
* Maximum Pipelines/node : 6
* Low cost wireless solution

-Power consumption is around 12 mA during transmission which is even lesser then the led.

-It can operate with baud rates from 250 Kbps up to 2 Mbps

-Its range can reach up to 100 meters if used in open space and with antenna..

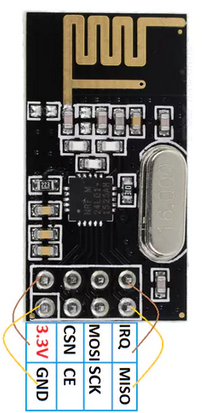
- Its can both send and receive the data simultaneously.

- Each module can communicate with up to 6 other modules.

- It uses the 2.4 GHz band.

- It can send 1->25 bytes of raw data at the transmission rate of 1 MB

- It has 125 different channels.



Three of these pins are for SPI communication and they need to be connected to the SPI pins of the MCU Master. The pins CSN and CE can be connected to any digital of the Master MCU and they are used for setting the module in standby or active mode, as well as for switching between transmit or command code. The last pin is an interrupt.

Software:

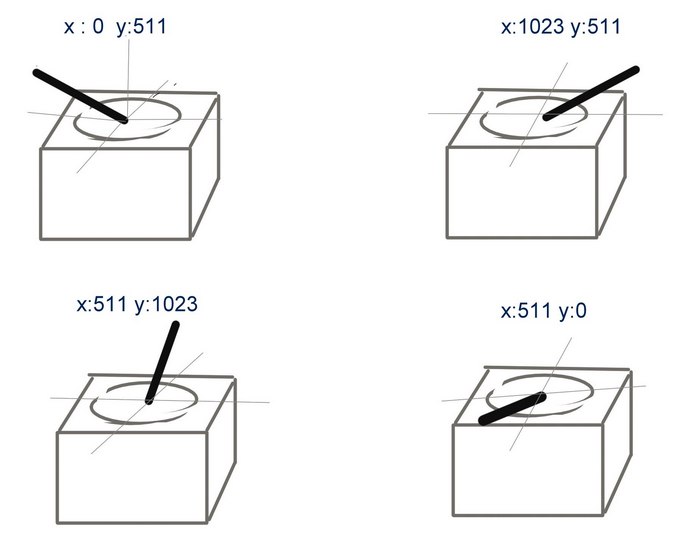
Useful library for RF module at link: [**http://tmrh20.github.io/RF24/**](http://tmrh20.github.io/RF24/)

https://github.com/nRF24/RF24

Go into Library Manager -> Search RF24L -> Install

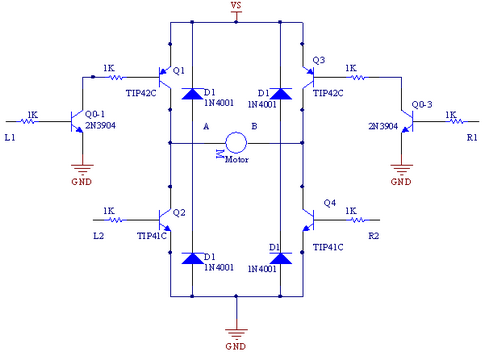
2. **JoyStick**

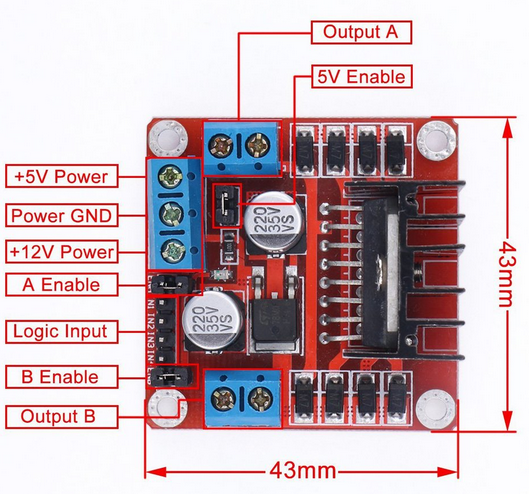
The analog joystick is similar to two potentiometer connected together, one for the vertical movement (Y-axis) and other for the horizontal movement (X-axis). The joystick also comes with a Select switch



Software: read analog signal.

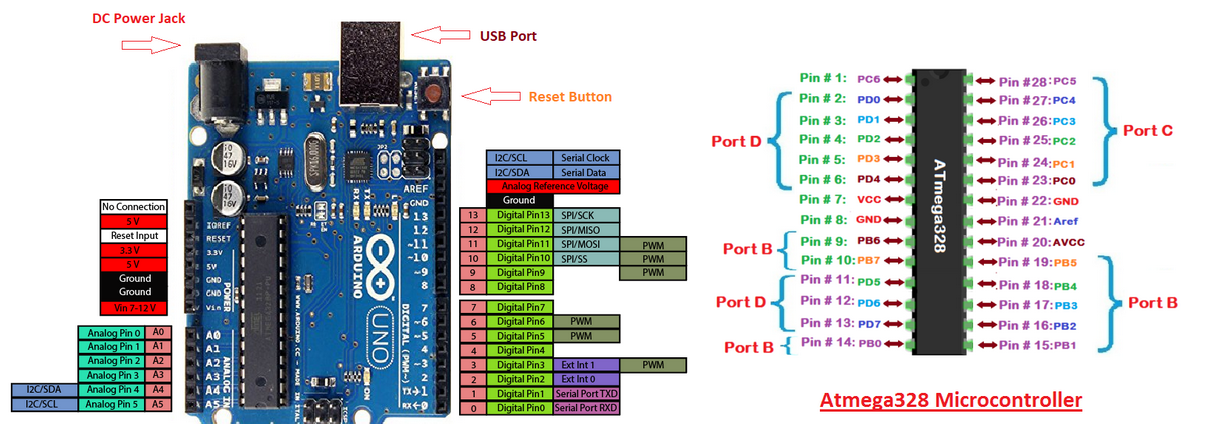
**3. L298 HBridge Circuit**.





**4. Arduino Uno**

Arduino Uno is base on AVR microcontroller called Atmega328. This controller comes with 2KB SRAM, 32 KB of flash memory, 1 KB of EEPROM. Arduino Board comes with 14 digital pins and 6 analog pins. On-Chip ADC is used to sample these pins. A 16 MHz frequency crystal oscillator is equipped on the board.



# Software Architecture

