Arduino

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Arduino Programming

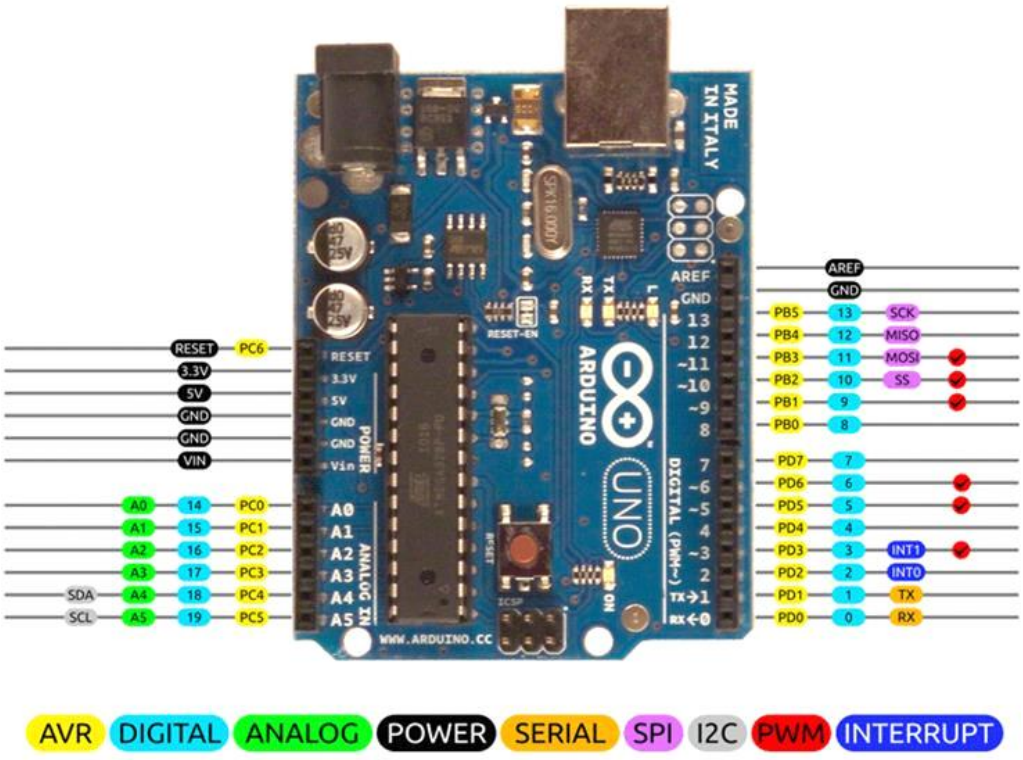
Different Types Of Arduino Boards

The list of Arduino boards includes the following such as

- Arduino Uno (R3)
- LilyPad Arduino
- Red Board
- Arduino Mega (R3)
- Arduino Leonardo

Features of Arduino Boards

Arduino Board	Processor	Memory	Digital I/O	Analogue I/O
Arduino Uno	16Mhz ATmega328	2KB SRAM, 32KB flash	14	6 input, 0 output
Arduino Due	84MHz AT91SAM3X8E	96KB SRAM, 512KB flash	54	12 input, 2 output
Arduino Mega	16MHz ATmega2560	8KB SRAM, 256KB flash	54	16 input, 0 output
Arduino Leonardo	16MHz ATmega32u4	2.5KB SRAM, 32KB flash	20	12 input, 0 output



https://components101.com/microcontrollers/arduino-uno

https://datasheet.octopart.com/A000066-Arduino-datasheet-38879526.pdf

Use Serial Monitor to Debug your Code

Done:-

Install the Arduino IDE

Connect your arduino board to your computer

Verify and upload a program into your board

Debug your code with the serial monitor

Reset the program running on the board

Implementing a Serial communication program on arduino that will do mathematical operations (Program)

Implementing a Serial communication program on arduino that will do mathematical operations (Input as a String)

XBee:-

XBee AT Commands:

AT (TEST): This is the test command to check if the module is responding an OK as reply confirms the same.

ATDH: Destination Address High. To configure the upper 32 bits of the 64-bit destination address DL and DH combined gives you 64 bit destination address.

ATDL: Destination Address Low. This again for configuring the lower 32 bits of the 64-bit destination address.

ATID: This command changes the PAN ID (PersThe ID is 4 bytes of hexadecimal and can range from 0000 to FFFF

ATWR: Write. Write parameter values to non-volatile memory so that parameter modifications persist through subsequent resets.

Note: Once WR is issued, no additional characters should be sent to the module until

After the "OK\r" response is received.

ATRE (Restore Defaults): Restores factory settings to the module, is very useful if the module does not responds.

To configure your module using AT command after entering command mode(i.e pressing +++) you need to type in terminal AT(XY) for example ATID 1001(this value can be anything from 0 to FFFF ,XBee commands always uses hexadecimal values).press enter if it returns OK then you can quickly type in terminal ATID to see if the value has been changed this will be finally written only after Using ATWR in the session the written value vanishes as soon as the module is powered off if ATWR is not used.

XBee Module Interfacing with Arduino

- Configuring one xbee as coordinator and other as end device using XCTU.
- Connect one xbee on arduino and upload a simple code which receives data and blink led.
- Now connect one xbee on explorer board and send data suing xctu sofware to the xbee on Arduino.
- Follow this for detail explanation : https://circuitdigest.com/microcontroller-projects/arduino-xbee-module-interfacing-tutorial

Interface XBee Module with Raspberry Pi

- Now connect one xbee on explorer board and connect it to raspberry pi to usb port.
- Follow this for detail explanation : https://circuitdigest.com/microcontroller-projects/raspberry-pi-xbee-module-interfacing
- The above setup is to communicate on xbee on the raspberry pi.
- For communicate on xbee on the raspberry pi to xbee on Arduino.
- Configuring one xbee as coordinator and other as end device using XCTU.
- Connect one xbee on arduino and upload a simple code which receives data and blink led.
- Wrtie python code to send data from raspberry pi to Arduino.