IoT Session 1

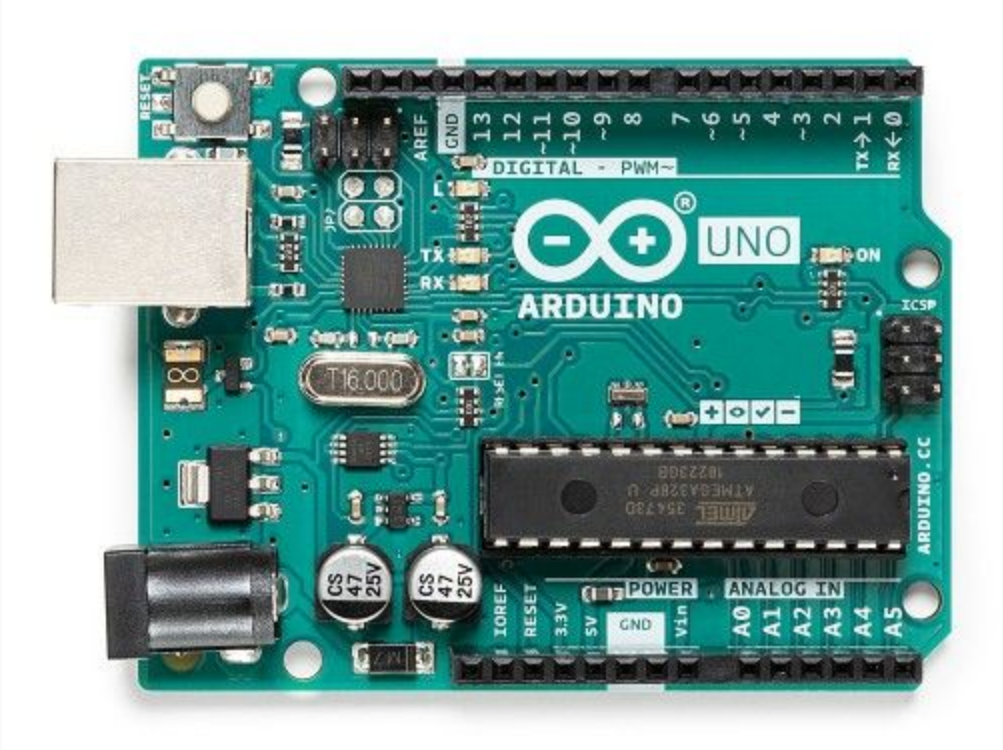
July 16, 2020

Objective

- Basics of Arduino Uno.
- Arduino IDE.
- Hands-on using TinkerCad.

Arduino Uno

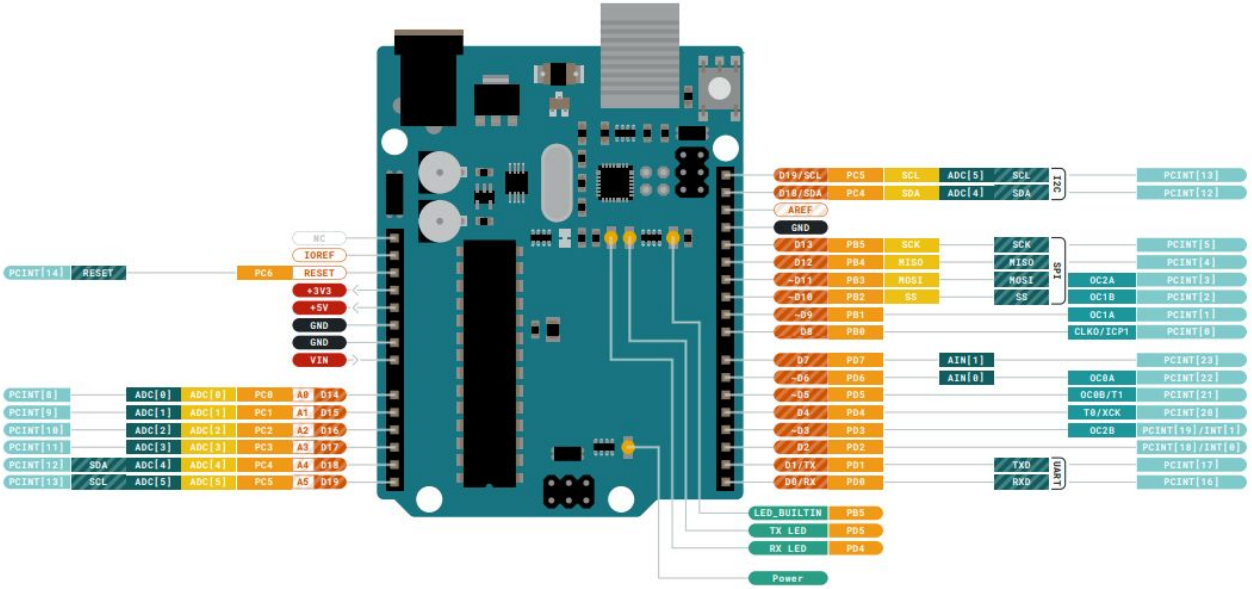
AVR® 8-Bit Microcontroller Family


RESET
AREF
GND
13 12 ~11 ~10 ~9 8 7 ~6 ~5 4 ~3 2 TX→1 RX←0
DIGITAL - PWM~
UNO
ON
ICSP
TX
RX
ARDUINO
T16.000
ATMEGA328P-U
ARDUINO.CC
POWER
ANALOG IN
IOREF
RESET
3.3V
5V
GND
Vin
A0 A1 A2 A3 A4 A5

ARDUINO

ARDUINO UNO REV3

STORE.ARDUINO.CC/UNO-REV3



Ground
Power
LED
Internal Pin
SWD Pin

Digital Pin
Analog Pin
Other Pin
Microcontroller's Port
Default

Analog
Communication
Timer
Interrupt
Sercom

MAXIMUM current per I/O pin is 20mA

MAXIMUM current per +3.3V pin is 50mA

VIN 6-20 V input to the board.

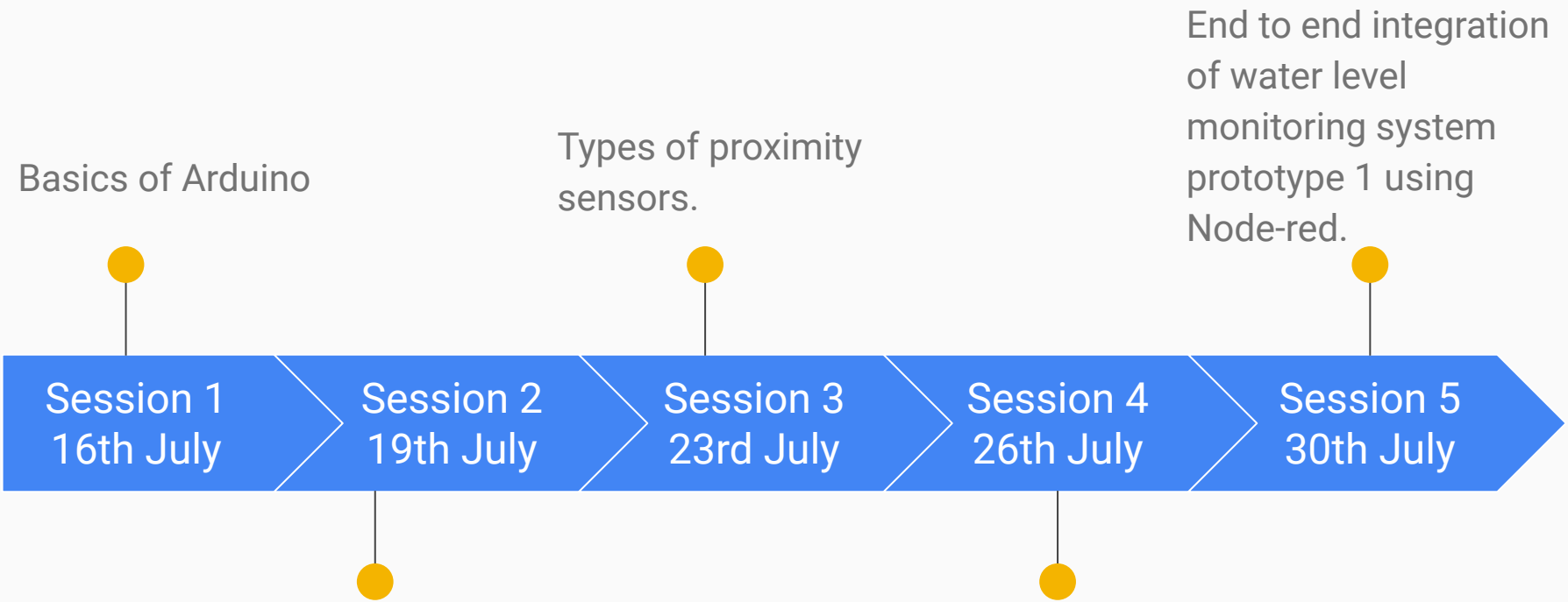
ARDUINO.CC

Last update: 17/06/2020

Specifications

- Microcontroller ATmega328P
- Digital I/O Pins 14 (of which 6 provide PWM output)
- Analog Input Pins 6
- Flash Memory 32 KB (ATmega328P) of which 0.5 KB used by bootloader
- SRAM 2 KB (ATmega328P)
- Clock Speed 16 MHz

Hands-on


Basics of Arduino
Types of proximity sensors.
End to end integration of water level monitoring system prototype 1 using Node-red.
Session 1
16th July
Session 2
19th July
Session 3
23rd July
Session 4
26th July
Session 5
30th July
Sensor integration with Arduino and nodemcu.
Introduction to MQTT and Node-red.

Task

Make a 3 bit counter with a delay of 500ms in between the count.

Use 3 separate LEDs.

Simulation tool - TinkerCad.

Description :

At 000; LED1 Low LED2 Low LED3 Low

At 001; LED1 Low LED2 Low LED3 HIGH

At 010; LED1 Low LED2 HIGH LED3 Low

...

At 111; LED1 HIGH LED2 HIGH LED3 HIGH

Feedback toh mangta hai!

https://forms.gle/4Zg1tMsvoofirtB69

El Fin!