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Date : 08/10/21

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Embedded application Development using Arduino.

Aim :-

To write an embedded C++ program to blink on LED using arduino Uno R_3

Algorithm :-

Step 1 :- start

step 2 :- connecting power supply with valid source.

step 3 :- using C++ initiate the respective pin using void setup() program using pinMode function

step 4 :- using LED_BUILTIN Argument the output pin. exactly devised using pin mode method.

step 5 :- using loop method the total time for glowing the LED is fixed using delay method and digital write method.

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IOT application development using ultra Sonic Sensor to find the distance between obstacles and Sensors

Aim:-
To develop an IOT application using ultra Sonic sensor to find the distance between Obstacles and Sensor.

Algorithm:-
Step 1:- Open and write code and upload all code to micro controller [arduino UNO R3]
Step 2:- Ultra Sonic Sensor contain 4 pins generally 2 pin's are common. They are (+) and (-) here (+) is Vcc and (-) is GND.
Step 3:- Connect "ping" pins to digital pin "7" and connect "Echo" pin to digital pin "6"
Step 4:- finally, powerup arduino UNO R3 and open Serial monitor on computer and read Sensors data.

Program:-

```
Const int pingpin = 7;
```

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IOT application development using Arduino to rotate Servo motor in all possible directions.

Aim :-

To write an IOT application development to rotate a Servo motor using arduino uno.

Algorithm :-

step 1 :- Start.
step 2 :- Connecting power supply with the valid source.
step 3 : Using c++ initialize the respective Servo - 9 by using Void Setup () Method.
step 4 : Program using Servo - 9 function
step 5 : Using Servo - 9 attach () argument the output pin exactly devised using method.
step 6 : Stop

Sketch :

```
#include <Servo.h>
int pos = 0;
Servo servo_9;
```

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IOT Application development using temperature sensor to read temperature.

Aim :-

To work with an IOT (arduino UNO R3) temperature sensor.

Algorithm :-

Step 1 :- Open arduino IDE and write that following Code and upload to arduino UNO R3. First place the LM35 anywhere horizontally.

Step 2 :- On your breadboard the flat side of the sensor must be facing you.

Step 3 :- Then connect three wires under the three pins of the sensor.

Step 4 :- The wire on the left will go to the 5V (+5 volts) on the arduino.

Step 5 :- The middle wire will go to A1 (analog pin 1)

Step 6 :- The wire on the right will go to GND (-) on the arduino.

Step 7 :- Power up that arduino and open serial monitor and read data from temperature sensor.

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Implement assembly and interfacing programs to blink an LED using embedded c.

Aim:-

To implement assembly and interfacing programs to blink an LED using embedded c.

Algorithm:-

step 1: start
step 2: connecting power supply with a valid source.
step 3: using embedded c, include the respective header files #includ <avr/io.h> and #include<util/delay.h>
step 4: using while loop set the port bit as using DDR.
step 5: using delay method, delay method function for 500 milliseconds.
step 6: perform exclusive OR operation for the same function PORTB ^= ~(1<<PB5);
step 7: Repeat the delay method for 500 milliseconds
step 8: stop.

Programs:-

```
#include <avr/io.h>
#include <util/delay.h>
int main (void)
{
while (1)
```