

College name: JP COLLEGE OF ENGINEERING

College code: 9512

Project ID :Proj_211932_Team_2

Phase:5(DOCUMENTATION)

TEAM MEMBERS:

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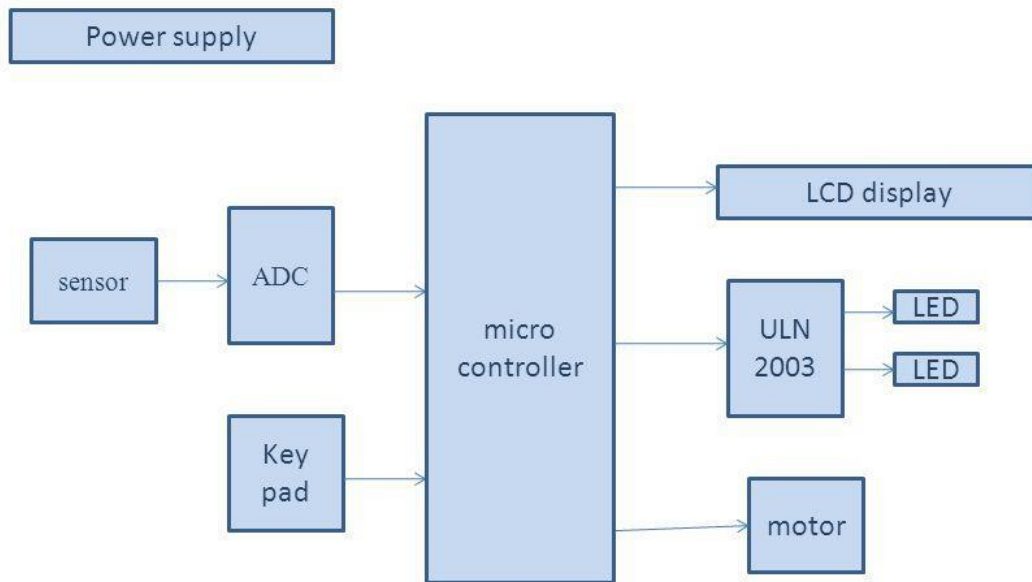
Topic:Smart Water Management

OBJECTIVES:

The main objective of smart water management is sustainable and reasonable usage as well as recycling of the water resources.Check out the main objectives of smart water management using the IOT technology.

BLOCK DIAGRAM:

BLOCK DIAGRAM



SAMPLE WEEKLY MAINTAINENCE:

	A	B	C	D	E
1	weekend	phase	time	temp	place
2	No	Morning	Second	moderate	Balcony
3	No	Evening	Third	cool	Bedroom
4	Yes	Morning	Second	high	Hall
5	Yes	Evening	First	high	Balcony
6	Yes	Morning	First	moderate	Bedroom
7	No	Evening	Second	cool	Balcony
8	No	Morning	Third	cool	Hall

CODE:

```
The Decision Tree is:
{'time': {'First': {'phase': {'Evening': 'Balcony', 'Morning': 'Bedroom'}},
          'Second': {'temp': {'cool': 'Balcony',
                               'high': 'Hall',
                               'moderate': 'Balcony'}}},
          'Third': {'phase': {'Evening': 'Bedroom', 'Morning': 'Hall'}}}}
```

```
elif arg=="comm2":
    msg_string = "Dear user, need your attention here. The water tank
                  \n\nIn the initial phase of the project you chose to
                  \n\nJust click on the Turn Off button to switch off.
                  \n\nYou can also choose other 2 options ie Direct Li

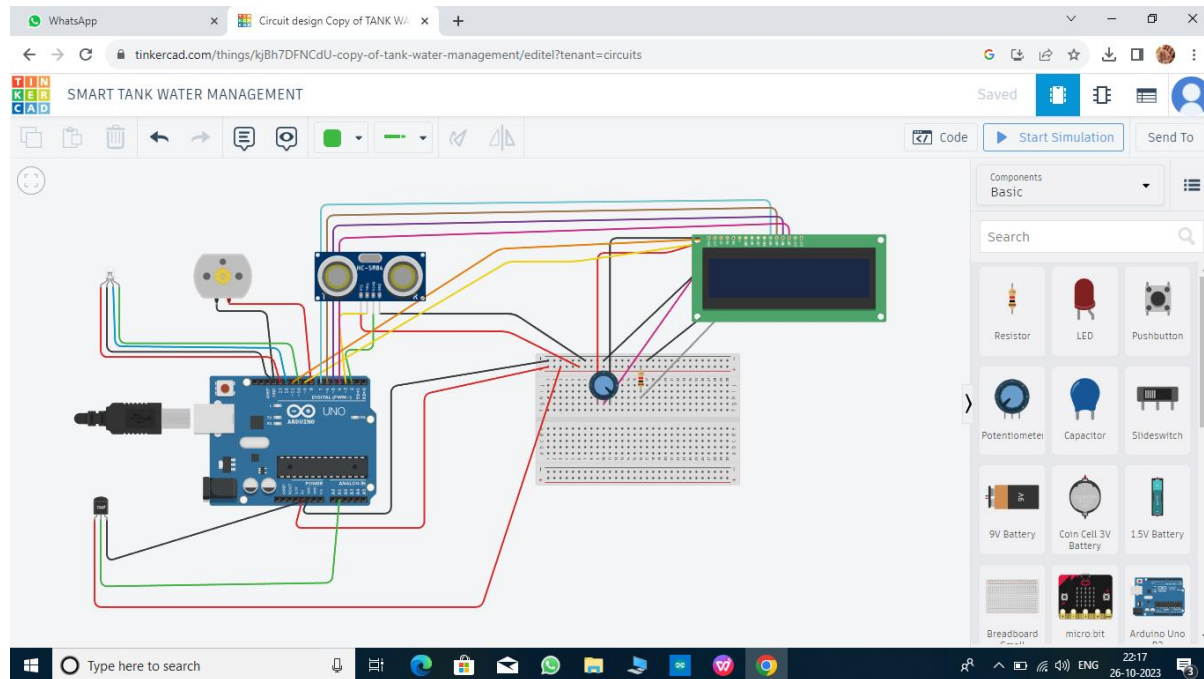
elif arg=="comm3":
    msg_string = "Dear user, need your attention here. The water tank
                  \n\nIn the initial phase of the project you chose to
                  \n\nLog in and then switch off the motor. You can al

elif arg=="stopped" or arg=="stop":
    msg_string = "Congrats user, one cycle of the autonomous project:
                  \n\nWishing you good luck for the rest of the day. Y

#whatsapp message
client.messages.create(
    from_='whatsapp:'+cred.FROM_,
    body=msg_string,
    to='whatsapp:'+cred.TO_
)

#text (normal) message
client.messages.create(
    from_= cred.text_FROM,
    body=msg_string,
    to= cred.TO_
)
```

DEVELOPED MODELS:



WEB TECHNOLOGY:

```
#include <LiquidCrystal.h>
```

```
# define echoPin 2 // Echo Pin
```

```
# define trigPin 3 // Trigger Pin
```

```
int maxRange = 200; // Maximum range
```

```
int minRange = 10; // Minimum range
```

```
long dur, dist; // Duration used to calculate distance
```

```
int val;
```

```
int tempPin = 1;
```

```
int red_light_pin= 13;
```

```
int green_light_pin = 10;
```

```
int blue_light_pin = 12;
```

```
LiquidCrystal lcd(11, 9, 7, 6, 5, 4);
```

```
void setup()
```

```
{
```

```
  pinMode(LED_BUILTIN, OUTPUT);
```

```
  pinMode(trigPin, OUTPUT);
```

```
  pinMode(echoPin, INPUT);
```

```
  pinMode(8,OUTPUT);
```

```
  pinMode(red_light_pin, OUTPUT);
```

```
  pinMode(green_light_pin, OUTPUT);
```

```
  pinMode(blue_light_pin, OUTPUT);
```

```
  lcd.begin(16, 2);
```

```
  // Print a message to the LCD.
```

```
}
```

```
void loop()
```

```
{
```

```
    digitalWrite(trigPin, LOW);
```

```
    delayMicroseconds(2);
```

```
digitalWrite(trigPin, HIGH);  
  
delayMicroseconds(10);  
  
digitalWrite(trigPin, LOW);  
  
dur = pulseIn(echoPin, HIGH);  
  
dist = dur / 58.2;
```

```
//temperature
```

```
    val = analogRead(tempPin);  
  
    float mv = ( val/1024.0)*5000;  
  
    float cel = mv/10;  
  
    float farh = (cel*9)/5 + 32;  
  
    if(cel>48){  
  
        RGB_color(255, 0, 0);  
  
        lcd.setCursor(0, 0);  
  
        lcd.print("HOT");  
  
        lcd.setCursor(1,1);  
  
        lcd.print(cel);  
  
        }  
  
else if(cel<16){  
  
    RGB_color(0, 0, 255);  
  
    lcd.setCursor(0, 0);  
  
    lcd.print("COLD");  
  
    lcd.setCursor(1,1);
```

```
lcd.print(cel);
```

```
}
```

```
if (dist <= minRange)
```

```
{
```

```
    digitalWrite(8, LOW);
```

```
}
```

```
    else if(dist >= maxRange){
```

```
        digitalWrite(8,HIGH);
```

```
        delay(10000);
```

```
}
```

```
else
```

```
{
```

```
    digitalWrite(8, LOW);
```

```
}
```

```
delay(50);
```

```
}
```

```

void RGB_color(int red_light_value, int green_light_value, int blue_light_value)
{
    analogWrite(red_light_pin, red_light_value);

    analogWrite(green_light_pin, green_light_value);

    analogWrite(blue_light_pin, blue_light_value);
}

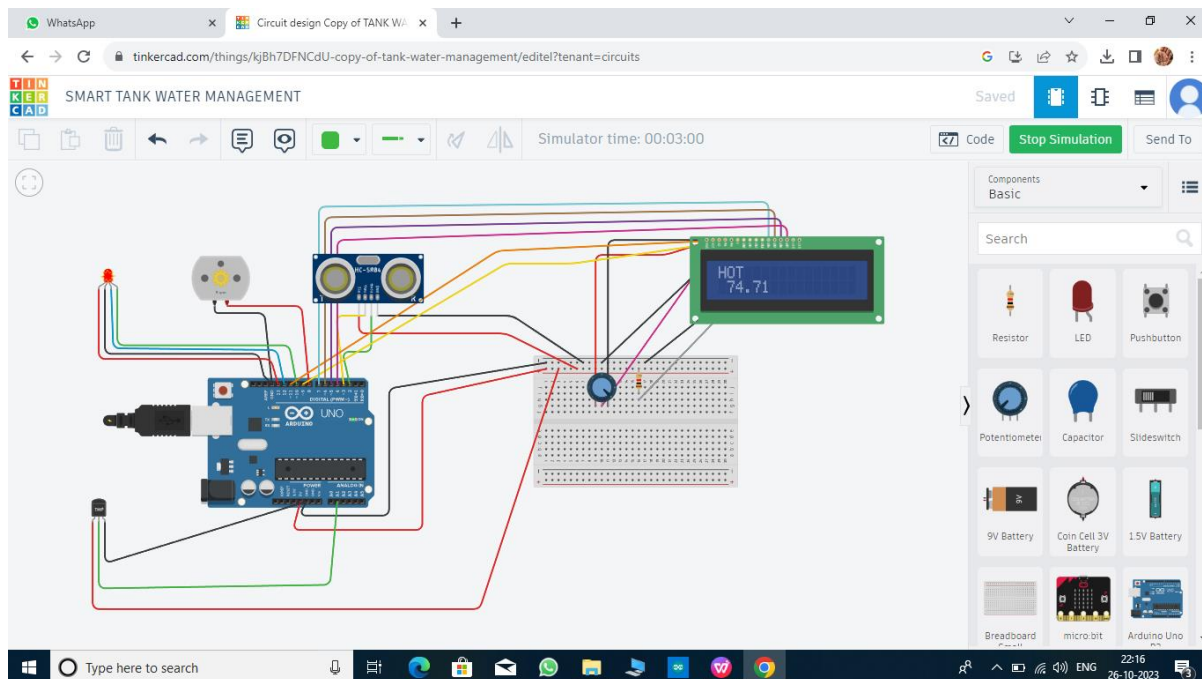
```

PUBLIC SAFETY:

Such a system helps determine and adjust water levels remotely and detect leakages. It's beneficial since it requires less manual labor, saves costs, and sends notifications if some parameters are not within the normal range.

EMERGENCY RESPONSE:

It provides safety to the people and it is verified by the below diagram.



CONCLUSION:

All living things need water for their survival. The largely fragmented approach that results has contributed to the overexploitation of water resources. By managing water is to increase the level of water and improve the quality of water.