Name: Preyash

Registration Number: 20BPS1022 DATE: 18-04-2022

Introduction to Cyber Physical Systems

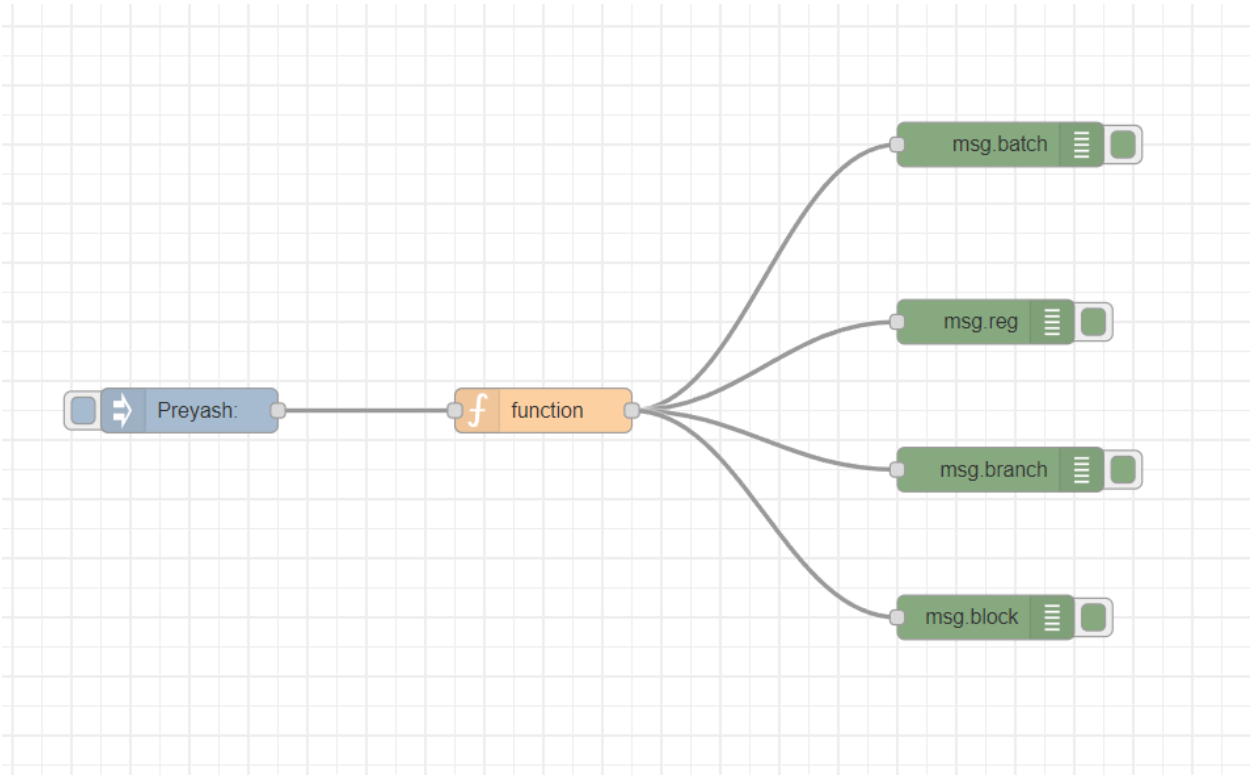
L31 & L32 SLOT

MID TERM LAB

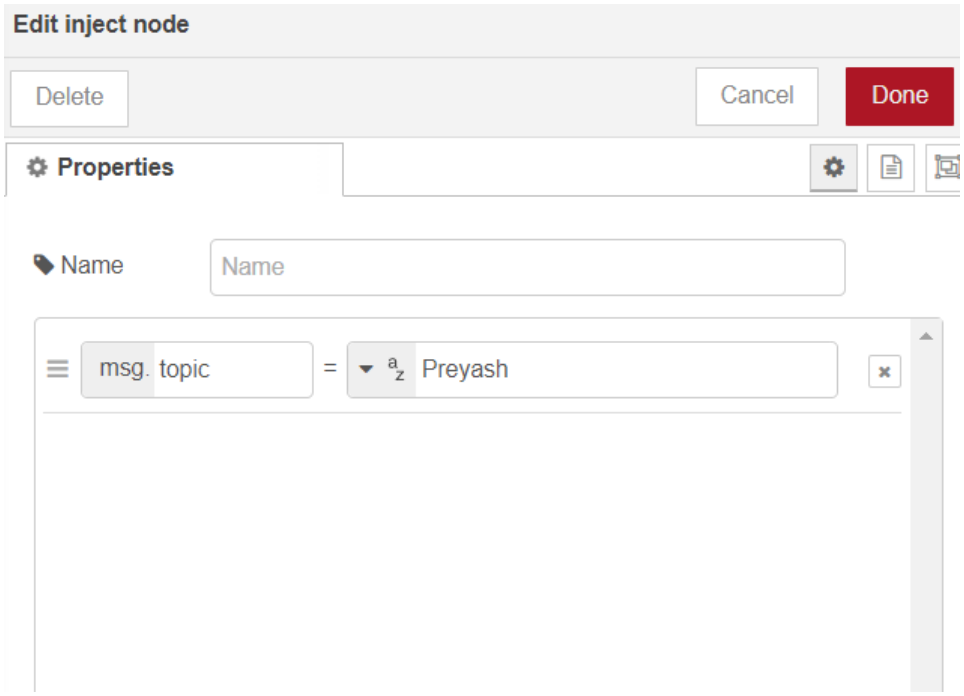
SET 5

1. Create and return multiple messages in a function node using node red.

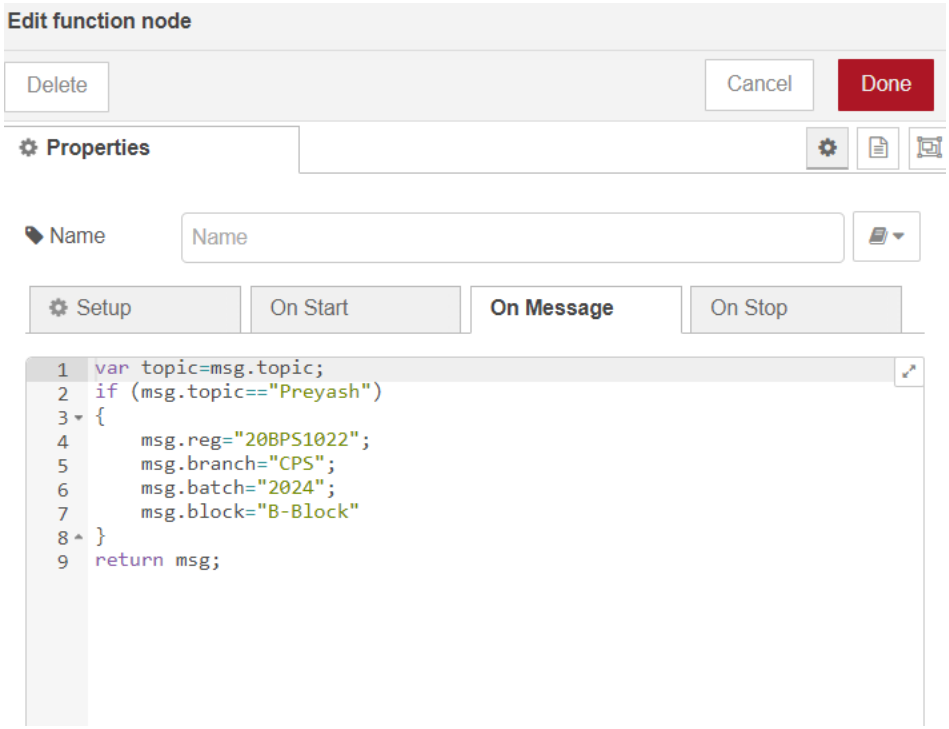
Flow:



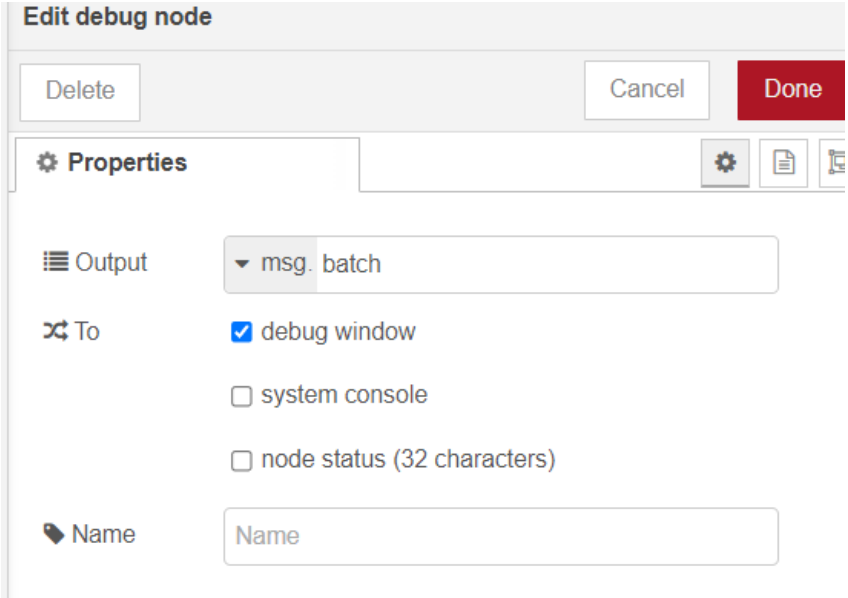
Inject Node:

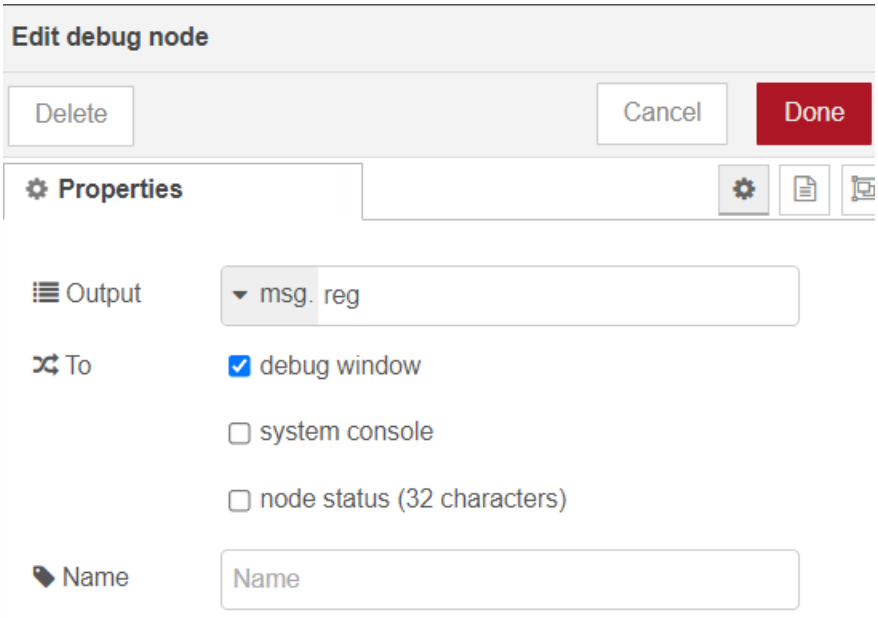


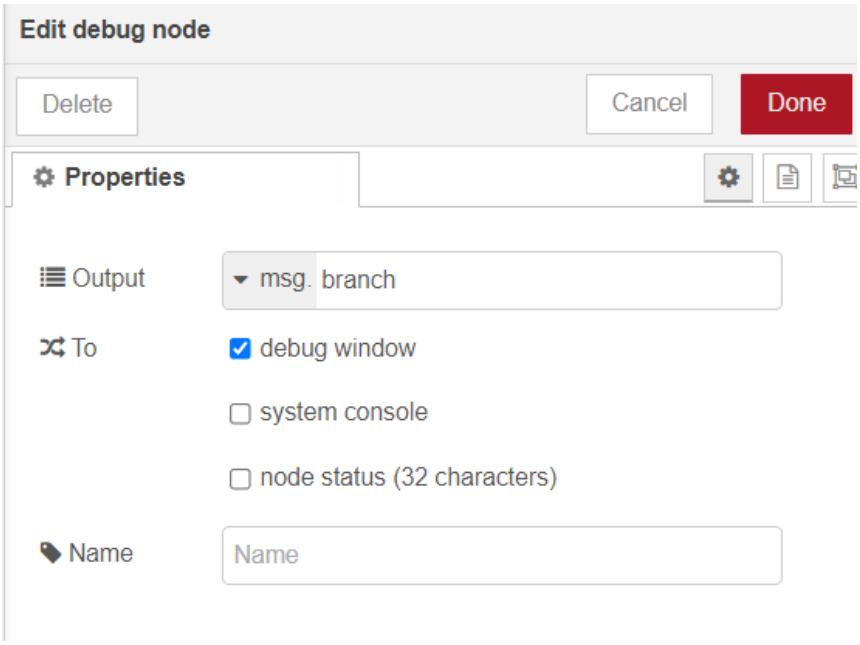
Function Node:

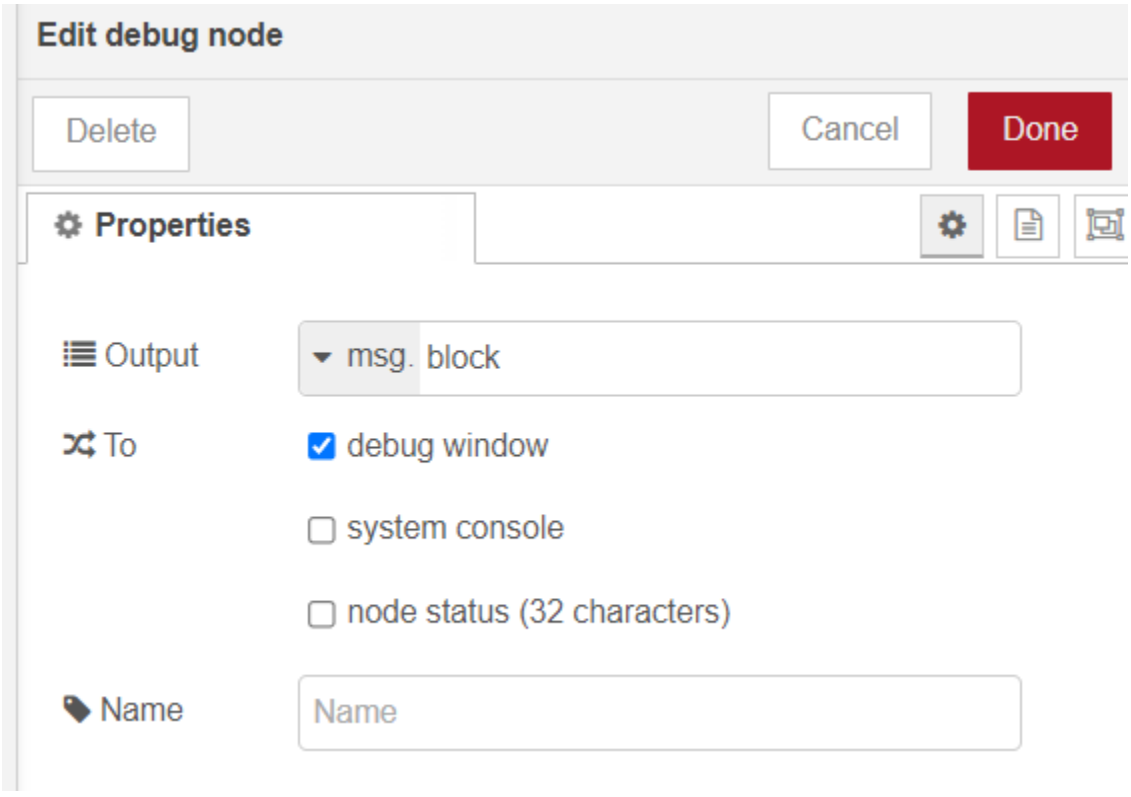


Debug nodes:


Edit debug node
Delete
Cancel
Done
Properties
Output
msg. batch
To
debug window
system console
node status (32 characters)
Name
Name


Edit debug node
Delete
Cancel
Done
Properties
Output
msg. reg
To
debug window
system console
node status (32 characters)
Name
Name


Edit debug node
Delete
Cancel
Done
Properties
Output
msg. branch
To
debug window
system console
node status (32 characters)
Name
Name


Edit debug node
Delete
Cancel
Done
Properties
Output
msg. block
To
debug window
system console
node status (32 characters)
Name
Name

Debug Window:

4/18/2022, 2:50:11 PM node: 00a4deb6c54e15e0

Preyash : msg.batch : string[4]

"2024"

4/18/2022, 2:50:11 PM node: ebb3da18b5c16ec5

Preyash : msg.reg : string[9]

"20BPS1022"

4/18/2022, 2:50:11 PM node: 7f8733a8c717474f

Preyash : msg.branch : string[3]

"CPS"

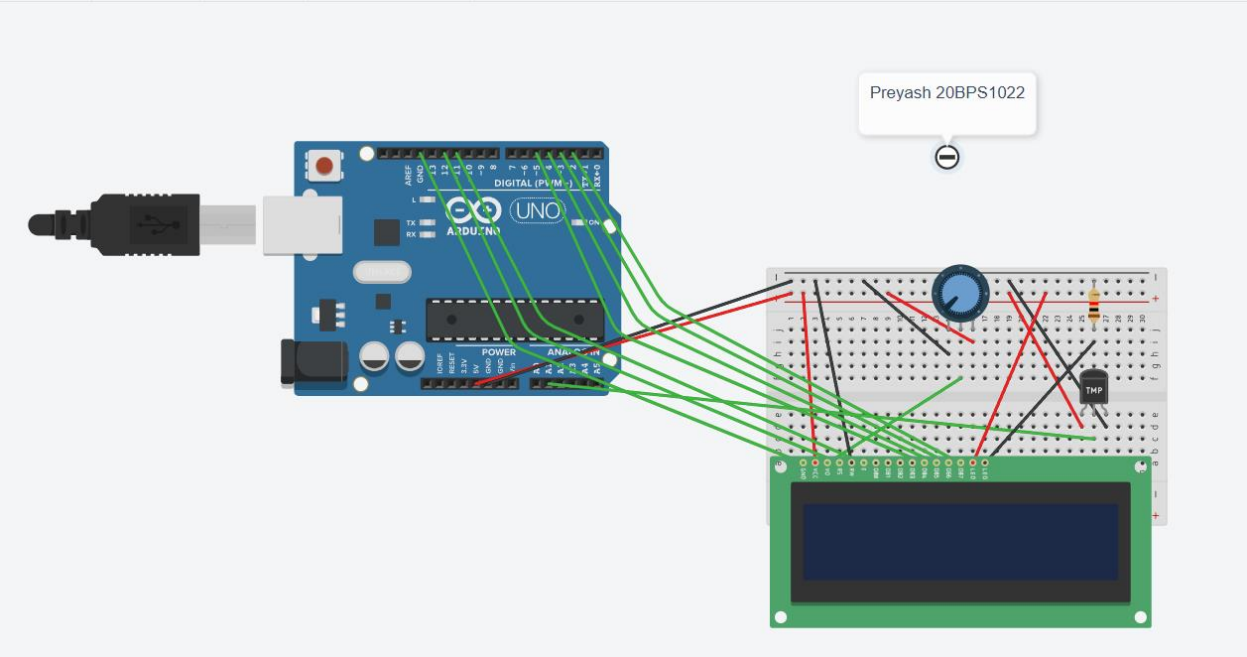
4/18/2022, 2:50:11 PM node: b22be370d1f0ec4d

Preyash : msg.block : string[7]

"B-Block"

2. Design a program using tinker cad to display the temperature value from the sensor in the LCD and serial monitor.

Circuit Diagram:



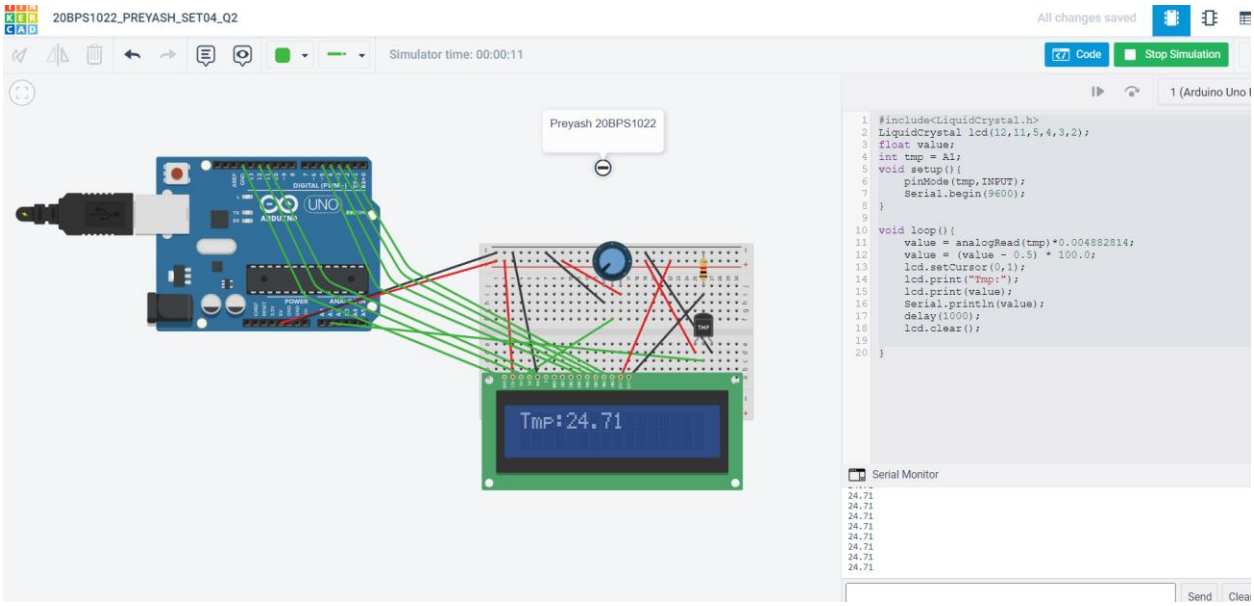
Code:

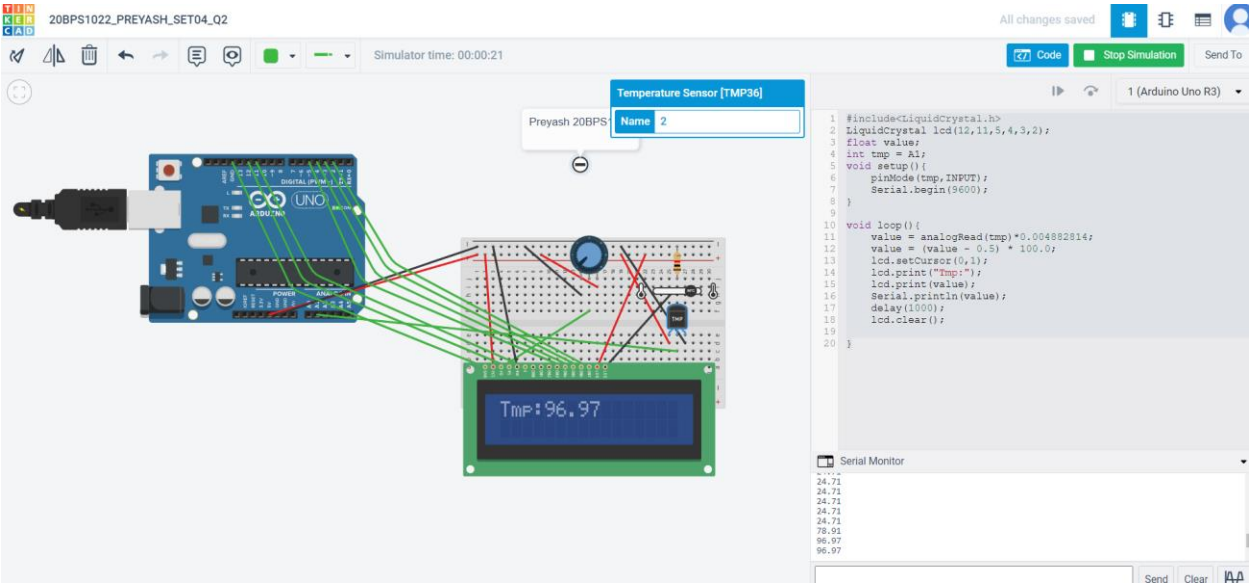
```
#include<LiquidCrystal.h>
LiquidCrystal lcd(12,11,5,4,3,2);
float value;
int tmp = A1;
void setup(){
        pinMode(tmp,INPUT);
        Serial.begin(9600);
}
void loop(){
        value = analogRead(tmp)*0.004882814;
```

```
    value = (value - 0.5) * 100.0;
    lcd.setCursor(0,1);
    lcd.print("Tmp:");
    lcd.print(value);
    Serial.println(value);
    delay(1000);
    lcd.clear();

}
```

Output:





Link: https://www.tinkercad.com/things/aGI1RnEpwUl-20bps1022preyashset04q2/editel?sharecode=yBFFQMbJHLrTL1cTNKOeveNO9MIzFOpJSCnZ-cQGTgk