간단한 수면등 제작

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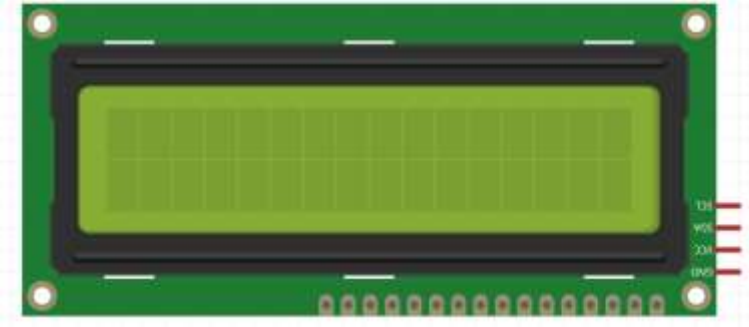
목차

1. 목표

LED를 이용한 간단한 수면등 제작

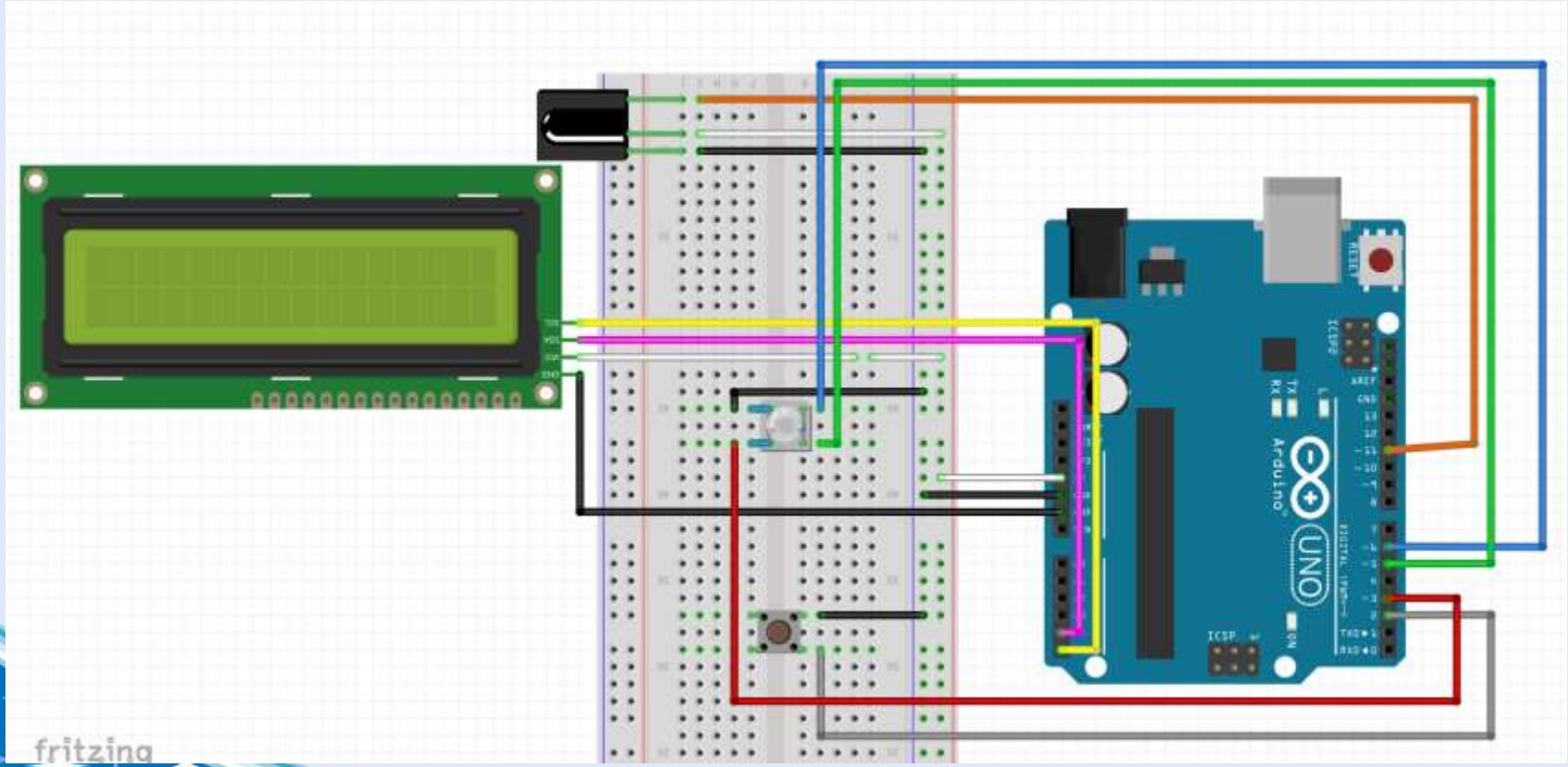
- 기능
  1. 스위치조작
  2. 리모컨 조작
  3. 타이머조작

2. 센서 및 참고 수업



- RGB LED
- 적외선 센서와 리모컨
- 스위치
- LCD(추가)

3. 회로



4. 코딩

```
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
#include <SimpleTimer.h>
#include <IRremote.h>

LiquidCrystal_I2C lcd(0x27,16,2);

SimpleTimer timer;

const int inputPin1=2;
const int RedLed=3;
const int GreenLed=5;
const int BlueLed=6;

int color=0;
int red=255;
int green=255;
int blue=255;

int irPin=11;

boolean led=false;
boolean booked=false;
```

```
//IRremote control HEX값
long ir1=0xFFA25D;
long ir2=0xFF629D;
long ir3=0xFFE21D;
long irLeft=0xFF10EF;
long irOk=0xFF38C7;
long irRight=0xFF5AA5;



IRrecv irrecv(irPin);
decode_results results;
```

```
void setup() {
  pinMode(inputPin1,INPUT_PULLUP);
  irrecv.enableIRIn();
  irrecv.blink13(true);
  lcd.init();
  lcd.clear();
  lcd.backlight();
  lcd.setCursor(0,0);
  lcd.print("Timer Setting");
  delay(3000);
  lcd.setCursor(1,1);
  lcd.print("Press 1 - 3");
  delay(6000);
  lcd.noBacklight();


}
```

4. 코딩

```
void ledOutput(int Red, int Green,int Blue){
  analogWrite(RedLed,Red);
  analogWrite(GreenLed,Green);
  analogWrite(BlueLed,Blue);
}


void turnLight(){
  booked=false;
  led=false;
}
```

```
void loop(){
  int swLed=digitalRead(inputPin1);

  if(led==true){
    ledOutput(red,green,blue);
  }
  else
  {
    ledOutput(0,0,0);
  }

  if(swLed==LOW){
    if(led==false)
    {
      led=true;
    }
    else{
      led=false;
    }
  }
```

```
if(irrecv.decode(&results)==true){
  if(results.value != 0xFFFFFFFF){

    if(results.value == irOk){
      if(led==false){
        led=true;
      }
      else
      {
        led=false;
        booked==false
      }
    }
    if(results.value==irLeft){
      if(color==0)
      {
        color=4;
      }
      else
      {
        color-=1;
      }
    }
    if(results.value==irRight){
      if(color==4){
        color=0;
      }
      else
      {
        color+=1;
      }
```

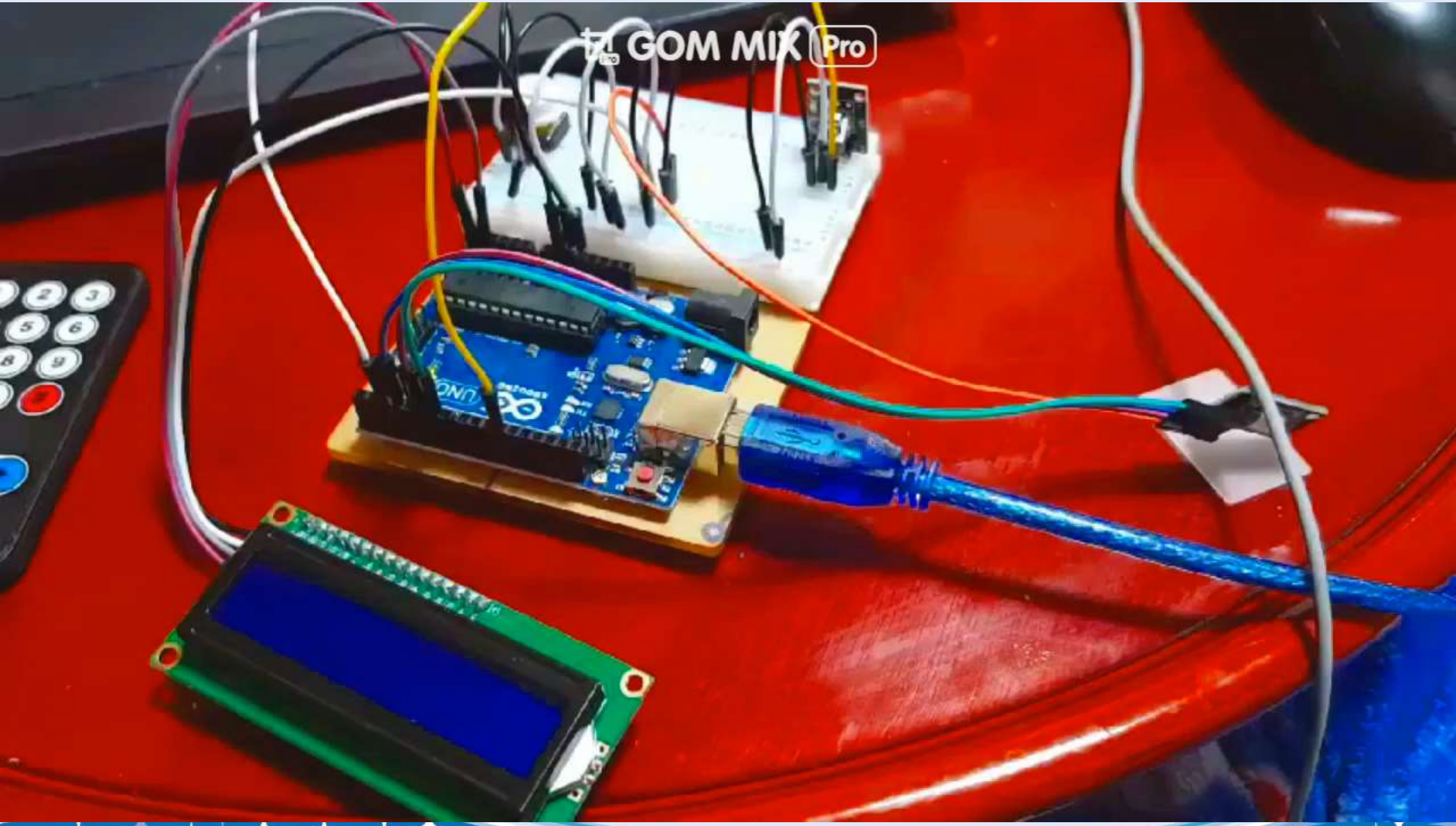
4. 코딩

```
if(results.value==ir1){
  booked=false;
  lcd.clear();
  lcd.backlight();
  lcd.setCursor(0,0);
  lcd.print("Timer setting:");
  lcd.setCursor(0,1);
  lcd.print("5 second");
  delay(3000);
  lcd.noBacklight();
  if(booked==false){
    booked=true;
    timer.setTimeout(5000,turnLight
  }
}
if(results.value==ir2){
  booked=false;
  lcd.clear();
  lcd.backlight();
  lcd.setCursor(0,0);
  lcd.print("Timer setting:");
  lcd.setCursor(0,1);
  lcd.print("10 minute");
  delay(3000);
  lcd.noBacklight();
  if(booked==false){
    booked=true;
    timer.setTimeout(600000,turnLight);
  }
```

```
if(results.value==ir3){
  booked=false;
  lcd.clear();
  lcd.backlight();
  lcd.setCursor(0,0);
  lcd.print("Timer setting:");
  lcd.setCursor(0,1);
  lcd.print("30 minute");
  delay(3000);
  lcd.noBacklight();
  if(booked==false){
    booked=true;
    timer.setTimeout(1800000,turnLight);
  }


 }
};
irrecv.resume();

}
```

```
if(color==0)
{
 red=255;
 green=255;
 blue=255;
}
else if(color==1){
 red=255;
 green=255;
 blue=0;
}
 else if(color==2){
 red=0;
 green=255;
 blue=255;
}
 else if(color==3){
 red=255;
 green=0;
 blue=255;
}
 else{
 red=0;
 green=255;
 blue=0;
}

timer.run();
}
```

5. 시연영상



6. 향후과제