# 자세교정 방석

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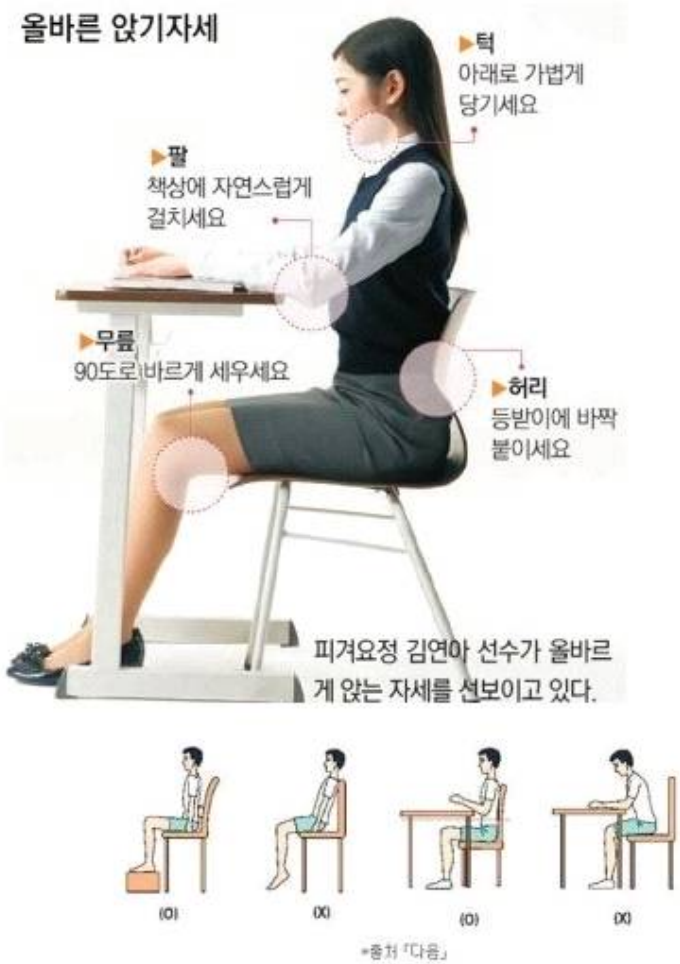
# 01
# 목적

# 자세교정을 도와주는 방석

# 01 목적




사진출처 : (좌)https://twitter.com/talua101/status/614407597324566528
(우
)https://m.blog.naver.com/PostView.nhn?blogId=yoous2923&logNo=220914096602&proxyReferer=https%3A%2F%
2Fwww.google.co.kr%2F

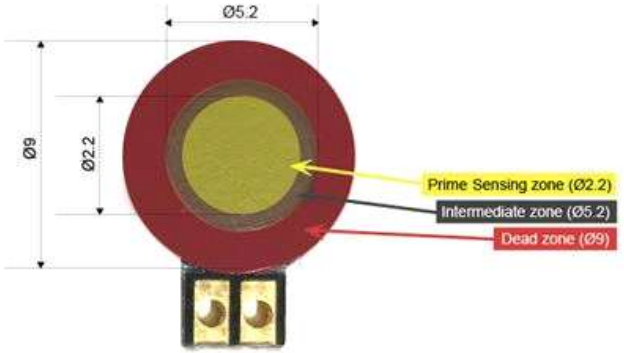
02

# 사용부품

# 압력센서(RA9P)


Top(㎜)

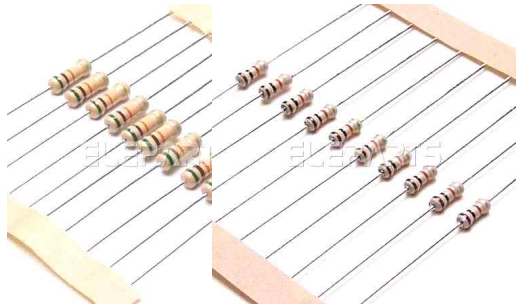

Bottom(㎜)




Sensing area(㎜)

# 기타 부품

브레드보드[ELB-80T]



10Kohm , 330ohm

Round Type LED

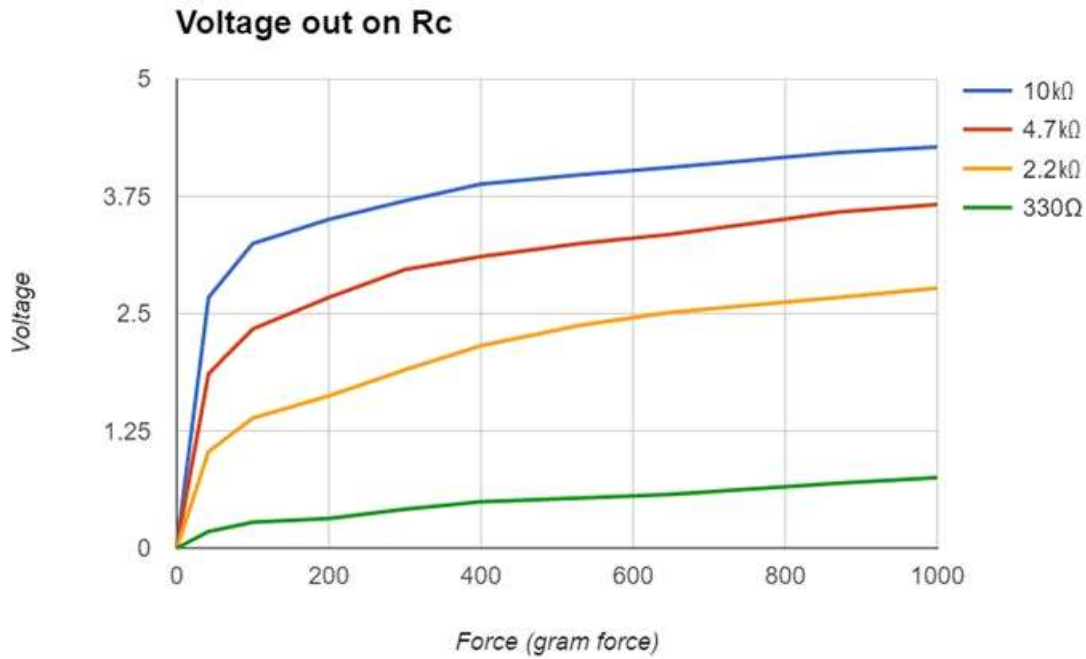
점프선

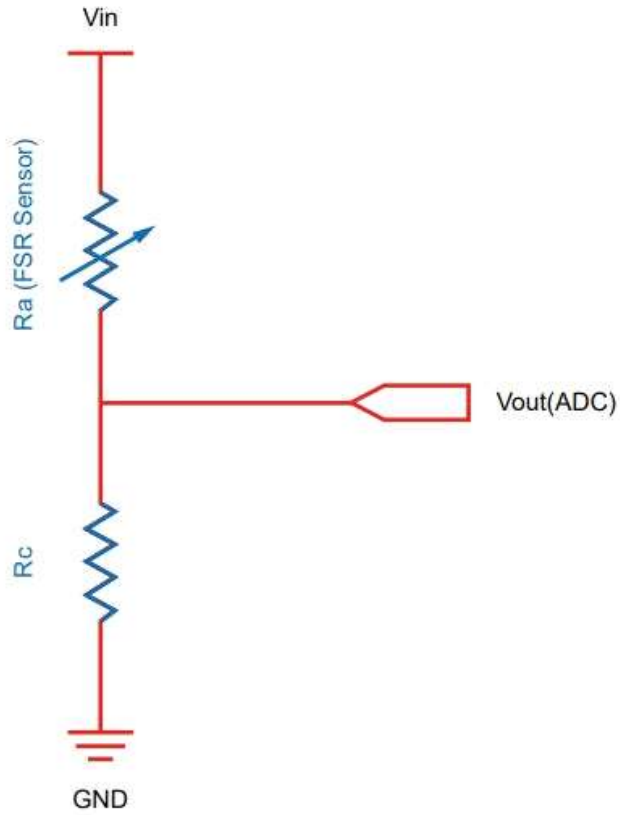
# 03
# 이론 및 설명

## 센서 F-R 곡선(Force to Resistance Curve)

누르는 면의 넓이 : 53㎟ / 누르는 면의 재질 : 플라스틱 사출물

## 센서 기판의 V패드와 A패드




$$Vout = Vin \times \frac{Ra}{Ra+Rc}$$

```
#include <stdio.h>
#include <wiringPi.h>

#define RAL 2 // BCM_GPIO 27
#define RAL 3 // BCM_GPIO 22
#define LEDL 4 // BCM_GPIO 23
#define LEDL 5 // BCM_GPIO 24

int main (void)
{
  int heavy;
  int diff;
  if(wiringPiSetup () ==-1)
      return 1;

  pinMode (LEDL, OUTPUT);
  pinMode (LEDR, OUTPUT);
  pinMode (RAL, INPUT);
  pinMode (RAR, INPUT);
```

```
21    while(1)
22    {
23      while(digitalRead(RAL)==0 && digitalRead(RAR)==0)
24      {
25        digitalWrite(LEDL,1);
26        digitalWrite(LEDR,1);
27      }
28      diff = digitalRead(RAL)-digitalRead(RAR)
29
30      if(diff>0)
31      {
32        heavy=digitalRead(RAL)-digitalRead(RAR);
33        digitalWrite(LEDL, heavy);
34        digitalWrite(LEDR, 0);
35      }
36      else if(diff<0)
37      {
38        heavy=digitalRead(RAR)-digitalRead(RAL);
39        digitalWrite(LEDR, heavy);
40        digitalWrite(LEDL, 0);
41      }
42      else
43      {
44        digitalWrite(LEDL, 0);
45        digitalWrite(LEDR, 0);
46      }
47    }
48    return 0;
49  }
```

# 03 이론 및 설명

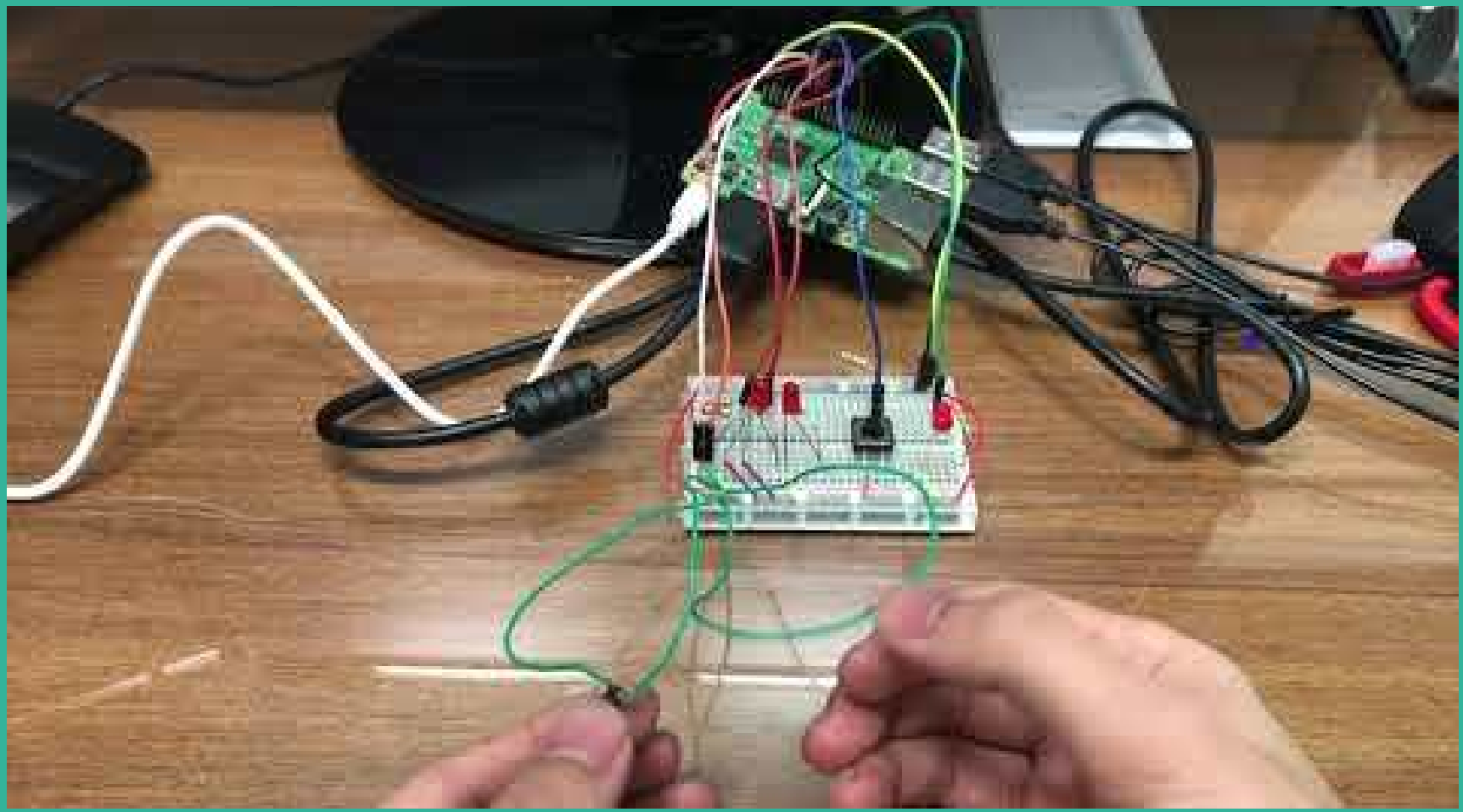
```c
#include <stdio.h>
#include <wiringPi.h>

#define RAL 2 // BCM_GPIO 27
#define RAL 3 // BCM_GPIO 22
#define LEDL 4 // BCM_GPIO 23
#define LEDL 5 // BCM_GPIO 24
#define LEDP 6 // BCM_GPIO 25
#define PW_SW 1 // BCM_GPIO 18

volatile int POWER_state = 0;
volatile int POWER_change = 0;

void powerPressed(void)
{
  if(POWER_state==0)
  POWER_state = 1;
  else
  POWER_state = 0;//POWER_state가 0이면 1을 넣고 1이면 0을 넣는다.
  POWER_change = 1; //POWER_change를1로 변경한다.
}

int main (void)
{
  int heavy;
  int diff;
  if(wiringPiSetup () ==-1)
      return 1;

  pinMode (LEDL, OUTPUT);
  pinMode (LEDR, OUTPUT);
  pinMode (RAL, INPUT);
  pinMode (RAR, INPUT)
  pinMode (LEDP, OUTPUT);
  pinMode (PW_SW, INPUT);

  wiringPiISR(PW_SW,INT_EDGE_RISING,powerPressed);

```

```
39  while(1)
40  {
41    POWER_change=0;
42    digitalWrite(LEDP, POWER_state);
43    while(POWER_state==1)
44    {
45      digitalWrite(LEDP,1);
46      while(digitalRead(RAL)==0 && digitalRead(RAR)==0)
47      {
48        digitalWrite(LEDL,1);
49        digitalWrite(LEDR,1);
50        delay(1000);
51        digitalWrite(LEDL,0);
52        digitalWrite(LEDR,0);
53        delay(1000);
54      }
55      while(digitalRead(RAL)==0 && digitalRead(RAR)==0)
56      {
57        diff = digitalRead(RAL)-digitalRead(RAR)
58
59        if(diff>0)
60        {
61          heavy=digitalRead(RAL)-digitalRead(RAR);
62          digitalWrite(LEDL, heavy);
63          digitalWrite(LEDR, 0);
64        }
65        else if(diff<0)
66        {
67          heavy=digitalRead(RAR)-digitalRead(RAL);
68          digitalWrite(LEDR, heavy);
69          digitalWrite(LEDL, 0);
70        }
71        else
72        {
73          digitalWrite(LEDL, 0);
74          digitalWrite(LEDR, 0);
75        }
76      }
77    }
```

```
78        while(POWER_state==0)
79        {
80          digitalWrite(LEDL, 0);
81          digitalWrite(LEDR, 0);
82        }
83      }
84      return 0;
85    }
```

# 04
# 사용영상

## 04 사용영상



https://www.youtube.com/watch?v=HPD1qHqdIPs

# Q & A

# ThankYou

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