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//Sensor de ré
```

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//trabalho Fatec Santo André realizado por GUSTAVO SASAKI; PEDRO HENRIQUE; RUBIA  
ARCHILA
```

```
#define trig 7 //pd7
```

```
#define echo 6 //pd6
```

```
#define led1 8 //branco pb0
```

```
#define led2 9 //azul pb1
```

```
#define led3 10 //verde pb2
```

```
#define led4 11 //amarelo pb3
```

```
#define led5 12 //vermelho pb4
```

```
long duracao;
```

```
float distancia;
```

```
#define BAUD 9600
```

```
#include <avr/io.h>
```

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

```
#include "minhasMacros.h"
```

```
#include "minhaCom.h"
```

```
#include "minhaAdc.h"
```

```
#include <util/setbaud.h>
```

```
void setup() {
```

```
    initUSART();
```

```
    setBit(DDRD,PD7);
```

```
    setBit(DDRB,PB0);
```

```
    setBit(DDRB,PB1);
```

```
    setBit(DDRB,PB2);
```

```
    setBit(DDRB,PB3);
```

```
    setBit(DDRB,PB4);
```

```
    clearBit(DDRD,PD6);
```

```

Serial.begin(9600);
}

void loop() {
  clearBit(PORTD, PD7);
  delayMicroseconds(5);
  setBit(PORTD, PD7);
  delayMicroseconds(10);
  clearBit(PORTD,PD7);

  duracao = pulseIn (echo, HIGH);

  distancia = duracao * 0.017;

  Serial.print("Distancia em cm: ");
  Serial.println(distancia);
  delay (1000);

  leddistancia();

}

void leddistancia(){
  clearBit(DDRB,PB0);
  clearBit(DDRB,PB1);
  clearBit(DDRB,PB2);
  clearBit(DDRB,PB3);
  clearBit(DDRB,PB4);

  if (distancia > 40) //acende led braco
  {

```

```
setBit(PORTB,PB0);
clearBit(PORTB,PB1);
clearBit(PORTB,PB2);
clearBit(PORTB,PB3);
clearBit(PORTB,PB4);
}
else if (distancia < 40 and distancia >=30) //acende led azul
{
setBit(PORTB,PB1);
clearBit(PORTB,PB0);
clearBit(PORTB,PB2);
clearBit(PORTB,PB3);
clearBit(PORTB,PB4);
}
else if (distancia < 30 and distancia >=20) //acende led verde
{
setBit(PORTB,PB2);
clearBit(PORTB,PB0);
clearBit(PORTB,PB1);
clearBit(PORTB,PB3);
clearBit(PORTB,PB4);
}
else if (distancia < 20 and distancia >=10)//acende led amarelo
{
setBit(PORTB,PB3);
clearBit(PORTB,PB0);
clearBit(PORTB,PB1);
clearBit(PORTB,PB2);
clearBit(PORTB,PB4);
}
else if (distancia < 10) //acende led vermelho
```

```
{  
    setBit(PORTB,PB4);  
    clearBit(PORTB,PB0);  
    clearBit(PORTB,PB1);  
    clearBit(PORTB,PB2);  
    clearBit(PORTB,PB3);  
}}
```