Curso de
ARDUINO
Automação e Robótica
Aula 38

Prof. Ms. Cássio Agnaldo Onodera

Realização:

INFOPRISE

Experiência 14

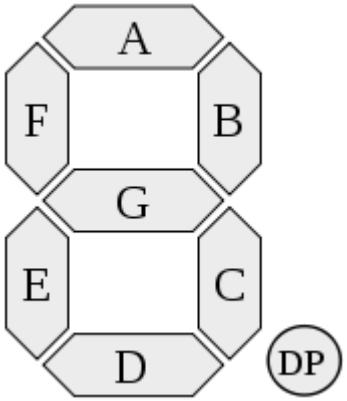
Contador

Experiência 14 – Contador

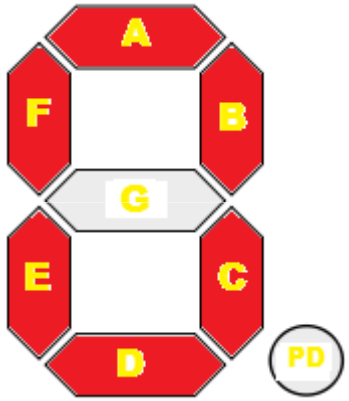
- Materiais necessários:
  - Arduino
  - Protoboard
  - Fios de conexão
  - Display de 7 Segmentos
  - Resistor 220r

- Função: Contar de 0 à 9

Experiência 14 – Contador



- Número 0:



- Leds: A, B, C, D, E, F

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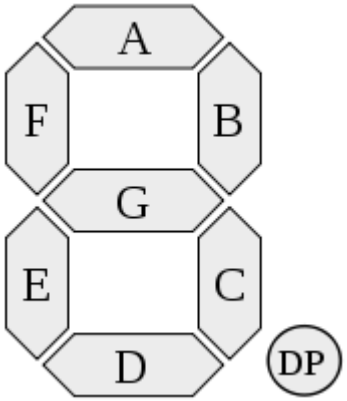
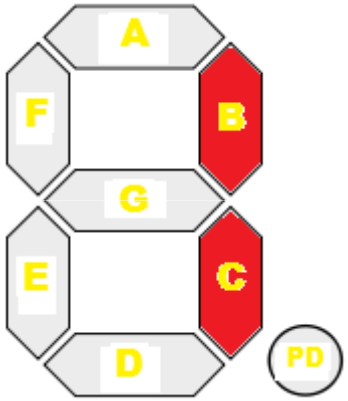
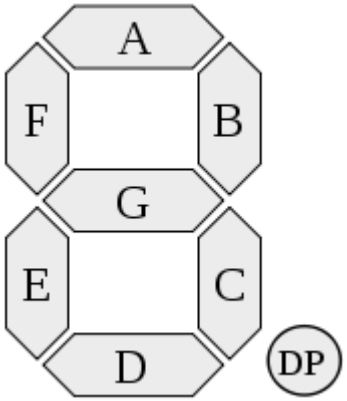


- Número 1:

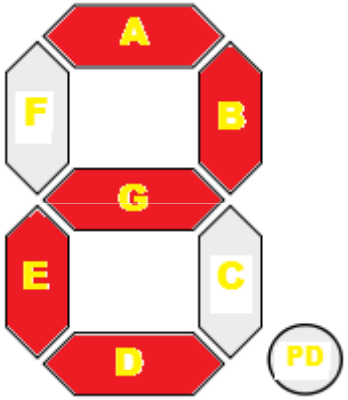


- Leds: B, C

Experiência 14 – Contador



- Número 2:



- Leds: A, B, D, E, G

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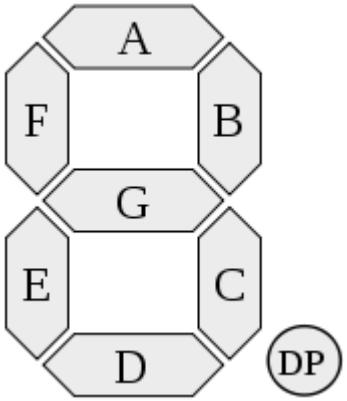
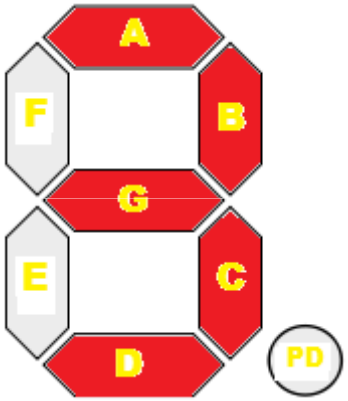


- Número 3:



- Leds: A, B, C, D, G

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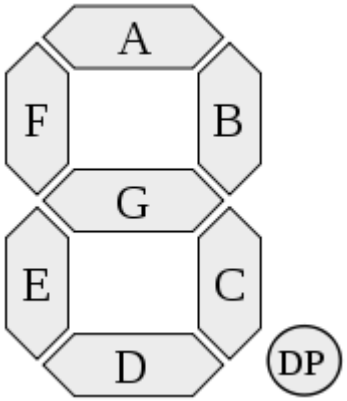

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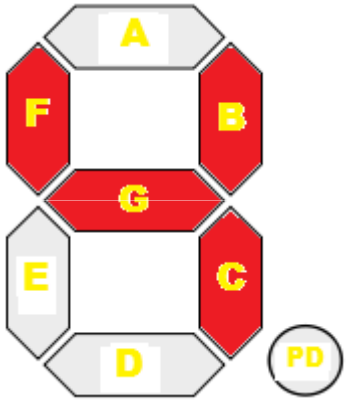

- Leds: B, C, F, G

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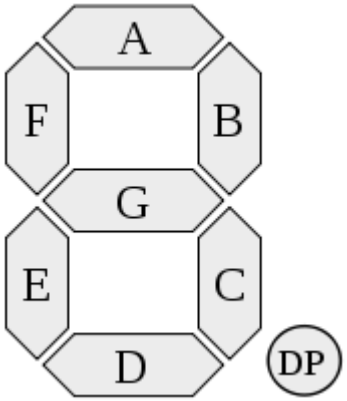

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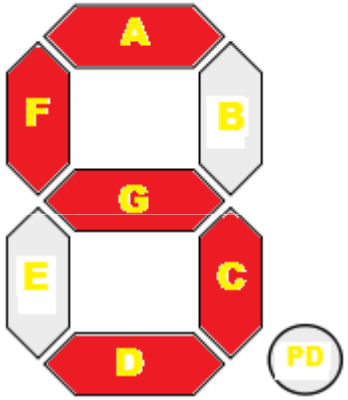

- Leds: A, C, D, F, G

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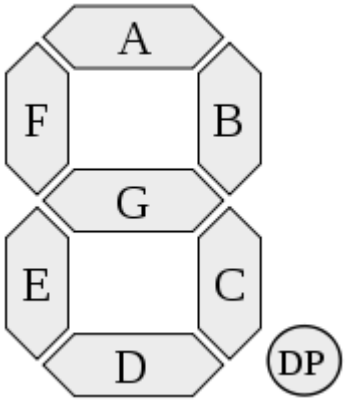

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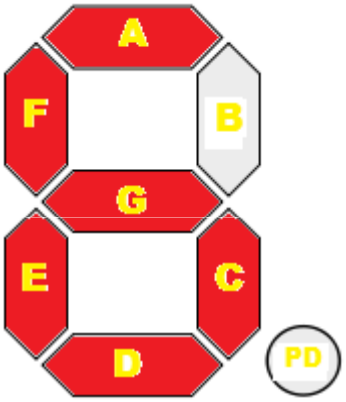

- Leds: A, C, D, E, F, G

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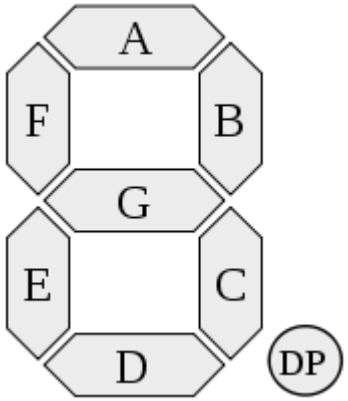

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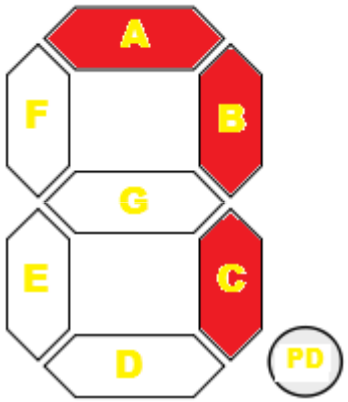

- Leds: A, B, C

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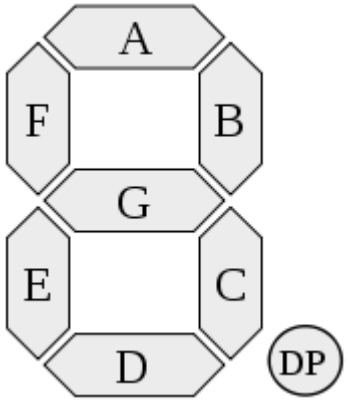
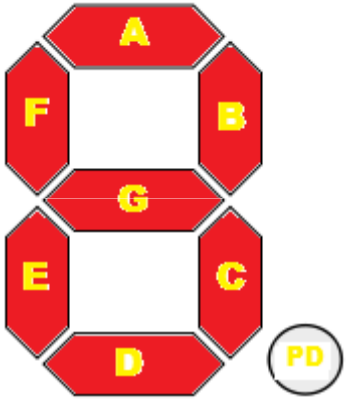


- Número 8:



- Leds: A, B, C, D, E, F, G

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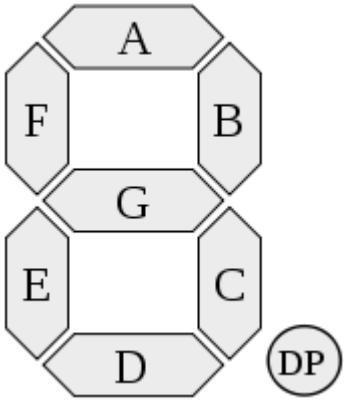
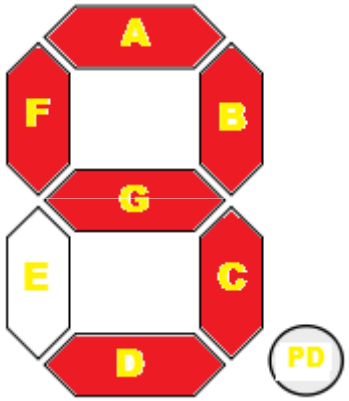


- Número 9:



- Leds: A, B, C, D, F, G

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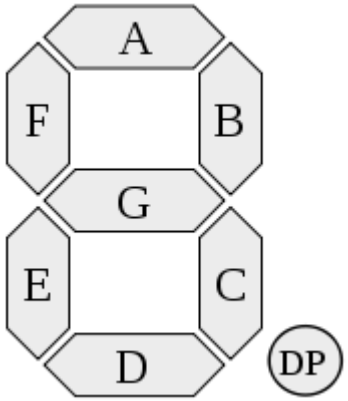
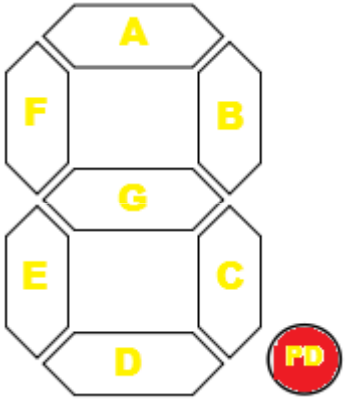
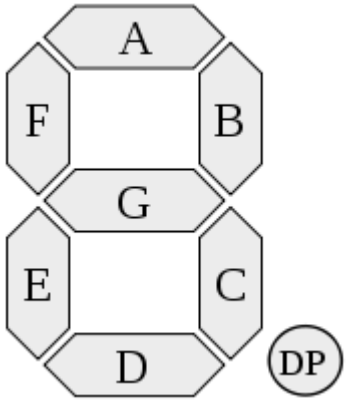


- Número: Ponto decimal

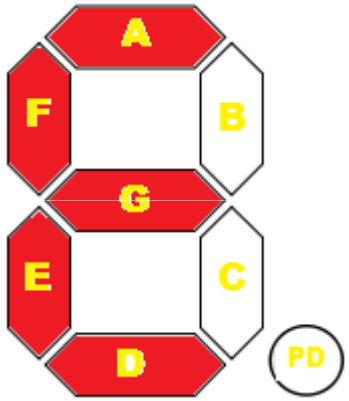


- Leds: PD

Experiência 14 – Contador

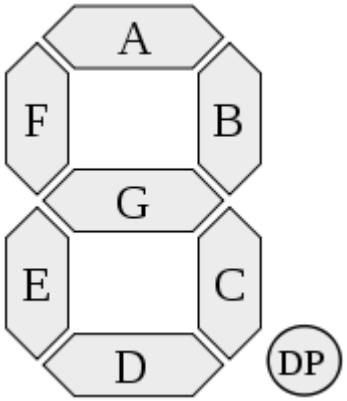


- Número: ERRO



- Leds: A, D, E, F, G

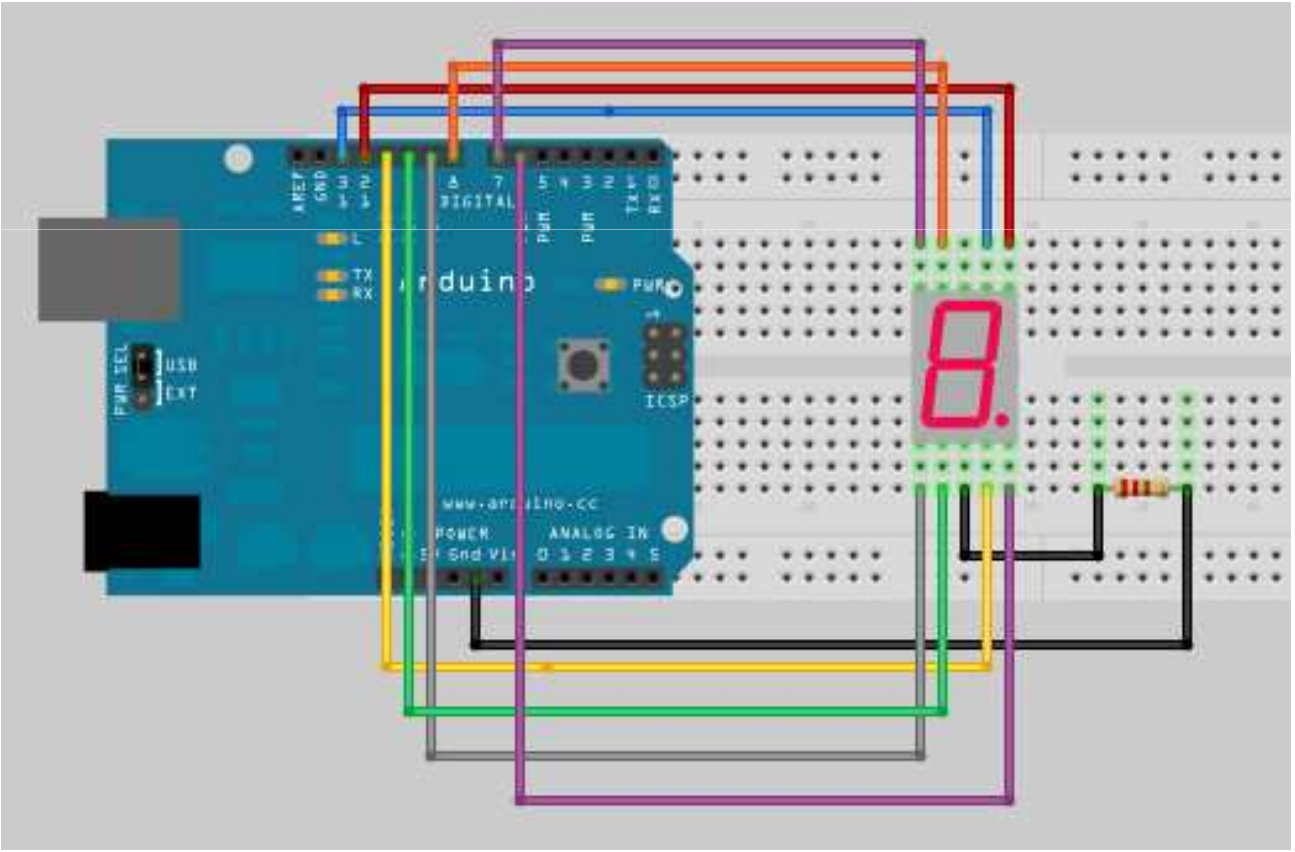
Experiência 14 – Contador



- Relação Led – número (de 0 à 9 – “E”=Erro)
  - Led A – 0 – 2 – 3 – 5 – 6 – 7- 8 – 9 - E
  - Led B – 0 – 1 – 2 – 3 – 4 – 7 – 8 – 9
  - Led C – 0 – 1 – 3 – 4 – 5 – 6 – 7 – 8- 9
  - Led D - 0 – 2 – 3 – 5 – 6 – 8 – 9 - E
  - Led E – 0 – 2 – 6 – 8 - E
  - Led F – 0 – 4 – 5 – 6 – 8 – 9 - E
  - Led G – 2 – 3 – 4 – 5 – 6 – 8 – 9 - E
  - Led do Ponto Decimal

Experiência 14 – Contador

- Esquema:



Experiência 14 – Contador

- Programa (**exp14.pde**):

```
#define PINO_A 13
#define PINO_B 12
#define PINO_C 11
#define PINO_D 10
#define PINO_E 9
#define PINO_F 8
#define PINO_G 7
#define PINO_PD 6  // PONTO DECIMAL

void imprimeNumero(int n)
{
  digitalWrite(13,LOW);
  digitalWrite(12,LOW);
  digitalWrite(11,LOW);
```

Experiência 14 – Contador

- Programa (**exp14.pde**):

```
digitalWrite(10,LOW);
digitalWrite(9,LOW);
digitalWrite(8,LOW);
digitalWrite(7,LOW);
digitalWrite(6,LOW);
if (n==0 || n==2 || n==3 || n==5 || n==6 || n==7 || n==8 || n==9 || n<0 || n>9)
  digitalWrite(PINO_A,HIGH);
if (n==0 || n==1 || n==2 || n==3 || n==4 || n==7 || n==8 || n==9)
  digitalWrite(PINO_B,HIGH);
if (n==0 || n==1 || n==3 || n==4 || n==5 || n==6 || n==7 || n==8 || n==9)
  digitalWrite(PINO_C,HIGH);
if (n==0 || n==2 || n==3 || n==5 || n==6 || n==8 || n==9 || n<0 || n>9)
  digitalWrite(PINO_D,HIGH);
if (n==0 || n==2 || n==6 || n==8 || n<0 || n>9)
  digitalWrite(PINO_E,HIGH);
```

Experiência 14 – Contador

- Programa (**exp14.pde**):

```
  if (n==0 || n==4 || n==5 || n==6 || n==8 || n==9 || n<0 || n>9)
    digitalWrite(PINO_F,HIGH);
  if (n==2 || n==3 || n==4 || n==5 || n==6 || n==8 || n==9 || n<0 || n>9)
    digitalWrite(PINO_G,HIGH);
}

void setup()
{
  Serial.begin(9600);
  pinMode(13,OUTPUT);
  pinMode(12,OUTPUT);
  pinMode(11,OUTPUT);
  pinMode(10,OUTPUT);
  pinMode(9,OUTPUT);
  pinMode(8,OUTPUT);
```

Experiência 14 – Contador

- Programa (**exp14.pde**):

```
pinMode(7,OUTPUT);
  pinMode(6,OUTPUT);
}

void loop()
{
  for (int x=0; x<=10;x++)
  {
    imprimeNumero(x);
    delay(1000);
  }
}
```