Universidad del Valle de Guatemala
Digital II
Sección 11

Carlos Cuellar
Carné 19275
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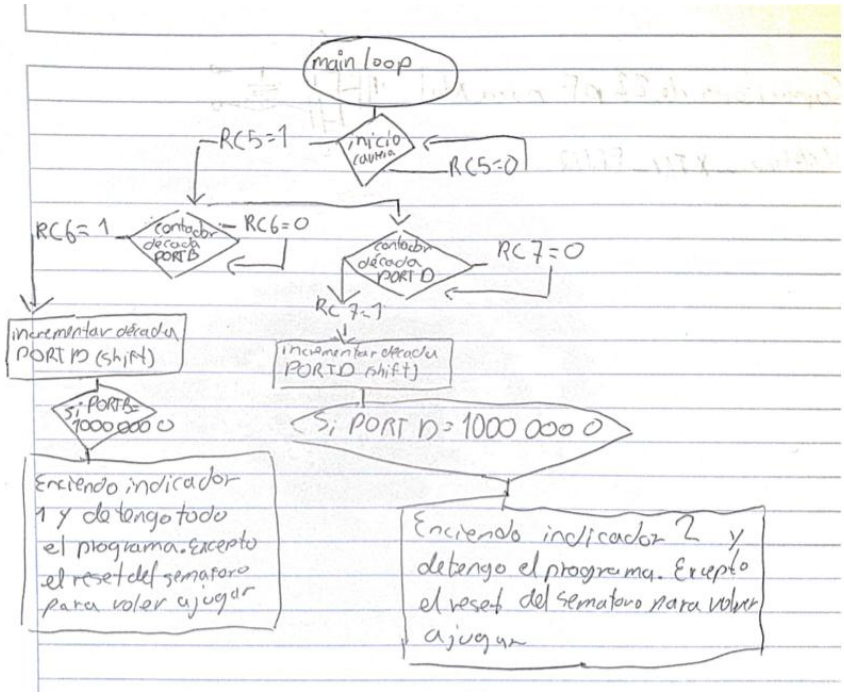
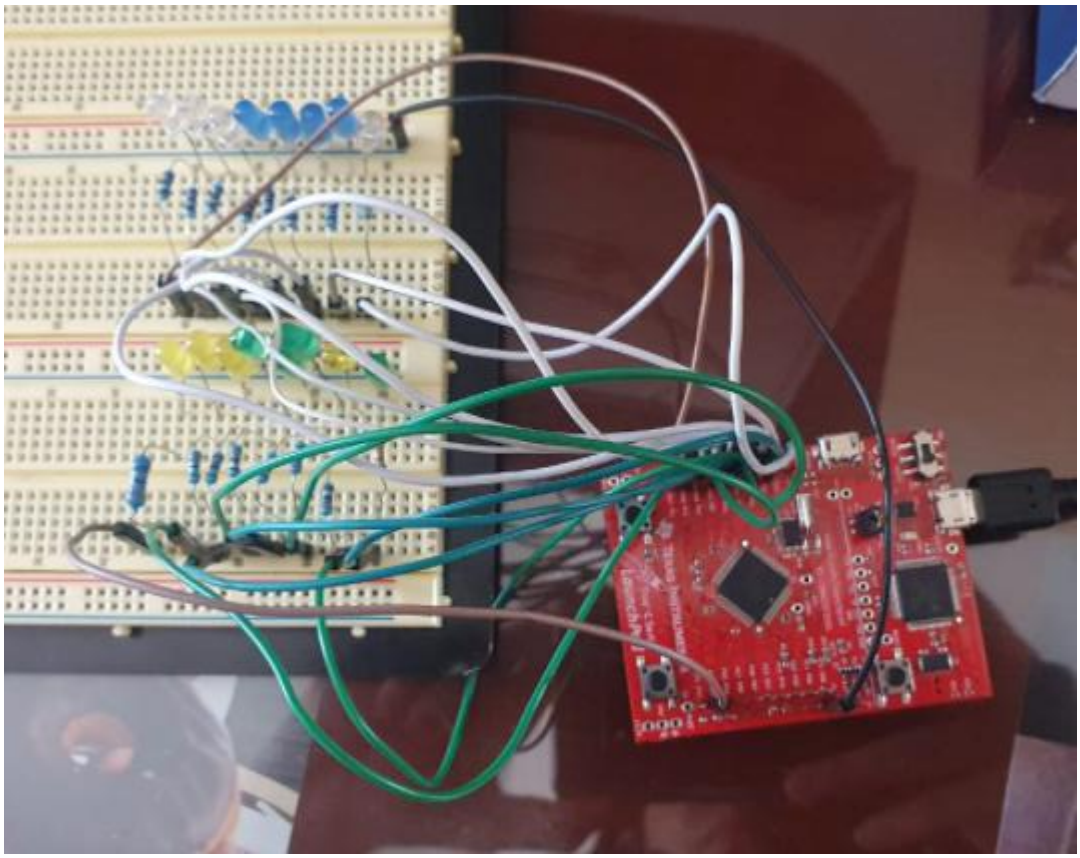
REPORTE #4:
Juego de Carreras en TIVA C

Link de repositorio: https://github.com/Cue19275/Digital2

Pre-lab:



Circuito:



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Carné 19275

Código:

```
#define J1_1 PB_5
#define J1_2 PB_0
#define J1_3 PB_1
#define J1_4 PE_4
#define J1_5 PE_5
#define J1_6 PB_4
#define J1_7 PA_5
#define J1_8 PA_6
#define J2_1 PD_0
#define J2_2 PD_1
#define J2_3 PD_2
#define J2_4 PD_3
#define J2_5 PE_1
#define J2_6 PE_2
#define J2_7 PE_3
#define J2_8 PD_7

int     estadoSalida;
int     estado;
int     estadoSalidaC2;
int     estadoC2;
int     enable_J = 0;
int     terminado = 0;
int     flagJ1 = 0;
int     flagJ2 = 0;
int     contaJ1 = 0;
int     contaJ2 = 0;

void semaforo (void);
void cont1 (void);
void cont2 (void);
void ganador (void);
void debounce (void);
void debounce2 (void);
void apagado(void);


void setup() {
   pinMode(J1_1, OUTPUT);
   pinMode(J1_2, OUTPUT);
   pinMode(J1_3, OUTPUT);
   pinMode(J1_4, OUTPUT);
   pinMode(J1_5, OUTPUT);
   pinMode(J1_6, OUTPUT);
   pinMode(J1_7, OUTPUT);
   pinMode(J1_8, OUTPUT);
   pinMode(J2_1, OUTPUT);
```

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```
    pinMode(J2_2, OUTPUT);
    pinMode(J2_3, OUTPUT);
    pinMode(J2_4, OUTPUT);
    pinMode(J2_5, OUTPUT);
    pinMode(J2_6, OUTPUT);
    pinMode(J2_7, OUTPUT);
    pinMode(J2_8, OUTPUT);
    pinMode(BLUE_LED, OUTPUT);
    pinMode(GREEN_LED, OUTPUT);
    pinMode(RED_LED, OUTPUT);
    pinMode(PUSH1, INPUT_PULLUP);
    pinMode(PUSH2, INPUT_PULLUP);
}

void loop() {
    // put your main code here, to run repeatedly:
    if (enable_J ==0){
        semaforo();
    }
    else if (enable_J == 1){
        cont1();
        cont2();
        /*if (terminado == 1){

                        estado = digitalRead(PUSH1);
                        if (estado == LOW){
                                estadoSalida=1;
                        }

                        if (estadoSalida==1){
                                if (estado == HIGH){
                                        estadoSalida =0;
                                        flagJ1 = 1;

                                }
                        }
                                estadoC2 = digitalRead(PUSH2);
                        if (estadoC2 == LOW){
                                estadoSalidaC2=1;
                        }

                        if (estadoSalidaC2==1){
                                if (estadoC2 == HIGH){
                                        estadoSalidaC2 =0;
                                        flagJ2 = 1;
                                }
                        }
                        if (flagJ1 == 1 && flagJ2 == 1){
                            flagJ2 = 0;
                            flagJ1 = 0;
```

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```
                        enable_J = 0;
                        terminado = 0;
                    }

        }*/
    }
    delay(200);
}

void semaforo(void){
        estado = digitalRead(PUSH1);
        if (estado == LOW){
            estadoSalida=1;
        }

        if (estadoSalida==1){
            if (estado == HIGH){
                estadoSalida =0;
                flagJ1 = 1;
            }
        }
        estadoC2 = digitalRead(PUSH2);
    if (estadoC2 == LOW){
        estadoSalidaC2=1;
    }

    if (estadoSalidaC2==1){
        if (estadoC2 == HIGH){
            estadoSalidaC2 =0;
            flagJ2 = 1;
        }
    }
        if (flagJ1 == 1 && flagJ2 == 1){
                apagado();
                enable_J = 1;
                flagJ1 = 0;
                flagJ2 = 0;
                digitalWrite(RED_LED, HIGH);
                digitalWrite(GREEN_LED, LOW);
                digitalWrite(BLUE_LED, LOW);
                delay(500);
                digitalWrite(BLUE_LED, LOW);
                digitalWrite(RED_LED, HIGH);
                digitalWrite(GREEN_LED, HIGH);
                delay(500);
                digitalWrite(GREEN_LED, HIGH);
                digitalWrite(RED_LED, LOW);
                digitalWrite(BLUE_LED, LOW);
        }
}
```

```
void apagado (void){
   digitalWrite(RED_LED, LOW);
   digitalWrite(BLUE_LED, LOW);
   digitalWrite(GREEN_LED, LOW);
   digitalWrite(J1_1, LOW);
   digitalWrite(J1_2, LOW);
   digitalWrite(J1_3, LOW);
   digitalWrite(J1_4, LOW);
   digitalWrite(J1_5, LOW);
   digitalWrite(J1_6, LOW);
   digitalWrite(J1_7, LOW);
   digitalWrite(J1_8, LOW);
   digitalWrite(J2_1, LOW);
   digitalWrite(J2_2, LOW);
   digitalWrite(J2_3, LOW);
   digitalWrite(J2_4, LOW);
   digitalWrite(J2_5, LOW);
   digitalWrite(J2_6, LOW);
   digitalWrite(J2_7, LOW);
   digitalWrite(J2_8, LOW);

}

void cont1 (void) {
   estado = digitalRead(PUSH1);
      if (estado == LOW){
            estadoSalida=1;
      }

      if (estadoSalida==1){
            if (estado == HIGH){
                  estadoSalida =0;
                  contaJ1++;
                  switch(contaJ1){
                     case 1:
                     digitalWrite(J1_1, HIGH);
                     digitalWrite(J1_2, LOW);
                     digitalWrite(J1_3, LOW);
                     digitalWrite(J1_4, LOW);
                     digitalWrite(J1_5, LOW);
                     digitalWrite(J1_6, LOW);
                     digitalWrite(J1_7, LOW);
                     digitalWrite(J1_8, LOW);
                     break;
                     case 2:
                     digitalWrite(J1_1, LOW);
                     digitalWrite(J1_2, HIGH);
                     digitalWrite(J1_3, LOW);
                     digitalWrite(J1_4, LOW);
```

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```
digitalWrite(J1_5, LOW);
digitalWrite(J1_6, LOW);
digitalWrite(J1_7, LOW);
digitalWrite(J1_8, LOW);
break;
case 3:
digitalWrite(J1_1, LOW);
digitalWrite(J1_2, LOW);
digitalWrite(J1_3, HIGH);
digitalWrite(J1_4, LOW);
digitalWrite(J1_5, LOW);
digitalWrite(J1_6, LOW);
digitalWrite(J1_7, LOW);
digitalWrite(J1_8, LOW);
break;
case 4:
digitalWrite(J1_1, LOW);
digitalWrite(J1_2, LOW);
digitalWrite(J1_3, LOW);
digitalWrite(J1_4, HIGH);
digitalWrite(J1_5, LOW);
digitalWrite(J1_6, LOW);
digitalWrite(J1_7, LOW);
digitalWrite(J1_8, LOW);
break;
case 5:
digitalWrite(J1_1, LOW);
digitalWrite(J1_2, LOW);
digitalWrite(J1_3, LOW);
digitalWrite(J1_4, LOW);
digitalWrite(J1_5, HIGH);
digitalWrite(J1_6, LOW);
digitalWrite(J1_7, LOW);
digitalWrite(J1_8, LOW);
break;
case 6:
digitalWrite(J1_1, LOW);
digitalWrite(J1_2, LOW);
digitalWrite(J1_3, LOW);
digitalWrite(J1_4, LOW);
digitalWrite(J1_5, LOW);
digitalWrite(J1_6, HIGH);
digitalWrite(J1_7, LOW);
digitalWrite(J1_8, LOW);
break;
case 7:
digitalWrite(J1_1, LOW);
digitalWrite(J1_2, LOW);
digitalWrite(J1_3, LOW);
digitalWrite(J1_4, LOW);
```

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```
                    digitalWrite(J1_5, LOW);
                    digitalWrite(J1_6, LOW);
                    digitalWrite(J1_7, HIGH);
                    digitalWrite(J1_8, LOW);
                    break;
                    case 8:
                    digitalWrite(J1_1, LOW);
                    digitalWrite(J1_2, LOW);
                    digitalWrite(J1_3, LOW);
                    digitalWrite(J1_4, LOW);
                    digitalWrite(J1_5, LOW);
                    digitalWrite(J1_6, LOW);
                    digitalWrite(J1_7, LOW);
                    digitalWrite(J1_8, HIGH);
                    break;
                    case 9:

                    contaJ1 = 0;
                    contaJ2 = 0;
                    enable_J = 0;
                    digitalWrite(GREEN_LED, LOW);
                    digitalWrite(RED_LED, HIGH);
                    digitalWrite(BLUE_LED, HIGH);
                    break;

            }
        }
}
}


void cont2 (void) {
            estadoC2 = digitalRead(PUSH2);
        if (estadoC2 == LOW){
            estadoSalidaC2=1;
        }

        if (estadoSalidaC2==1){
            if (estadoC2 == HIGH){
                estadoSalidaC2 =0;
                contaJ2++;
                switch(contaJ2){
                    case 1:
                    digitalWrite(J2_1, HIGH);
                    digitalWrite(J2_2, LOW);
                    digitalWrite(J2_3, LOW);
                    digitalWrite(J2_4, LOW);
                    digitalWrite(J2_5, LOW);
                    digitalWrite(J2_6, LOW);
                    digitalWrite(J2_7, LOW);
```

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```
digitalWrite(J2_8, LOW);
break;
case 2:
digitalWrite(J2_1, LOW);
digitalWrite(J2_2, HIGH);
digitalWrite(J2_3, LOW);
digitalWrite(J2_4, LOW);
digitalWrite(J2_5, LOW);
digitalWrite(J2_6, LOW);
digitalWrite(J2_7, LOW);
digitalWrite(J2_8, LOW);
break;
case 3:
digitalWrite(J2_1, LOW);
digitalWrite(J2_2, LOW);
digitalWrite(J2_3, HIGH);
digitalWrite(J2_4, LOW);
digitalWrite(J2_5, LOW);
digitalWrite(J2_6, LOW);
digitalWrite(J2_7, LOW);
digitalWrite(J2_8, LOW);
break;
case 4:
digitalWrite(J2_1, LOW);
digitalWrite(J2_2, LOW);
digitalWrite(J2_3, LOW);
digitalWrite(J2_4, HIGH);
digitalWrite(J2_5, LOW);
digitalWrite(J2_6, LOW);
digitalWrite(J2_7, LOW);
digitalWrite(J2_8, LOW);
break;
case 5:
digitalWrite(J2_1, LOW);
digitalWrite(J2_2, LOW);
digitalWrite(J2_3, LOW);
digitalWrite(J2_4, LOW);
digitalWrite(J2_5, HIGH);
digitalWrite(J2_6, LOW);
digitalWrite(J2_7, LOW);
digitalWrite(J2_8, LOW);
break;
case 6:
digitalWrite(J2_1, LOW);
digitalWrite(J2_2, LOW);
digitalWrite(J2_3, LOW);
digitalWrite(J2_4, LOW);
digitalWrite(J2_5, LOW);
digitalWrite(J2_6, HIGH);
digitalWrite(J2_7, LOW);
```

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```
                digitalWrite(J2_8, LOW);
                break;
                case 7:
                digitalWrite(J2_1, LOW);
                digitalWrite(J2_2, LOW);
                digitalWrite(J2_3, LOW);
                digitalWrite(J2_4, LOW);
                digitalWrite(J2_5, LOW);
                digitalWrite(J2_6, LOW);
                digitalWrite(J2_7, HIGH);
                digitalWrite(J2_8, LOW);
                break;
                case 8:
                digitalWrite(J2_1, LOW);
                digitalWrite(J2_2, LOW);
                digitalWrite(J2_3, LOW);
                digitalWrite(J2_4, LOW);
                digitalWrite(J2_5, LOW);
                digitalWrite(J2_6, LOW);
                digitalWrite(J2_7, LOW);
                digitalWrite(J2_8, HIGH);
                break;
                case 9:

                contaJ2 = 0;
                contaJ1 = 0;
                enable_J = 0;
                digitalWrite(GREEN_LED, HIGH);
                digitalWrite(BLUE_LED, HIGH);
                break;

            }
        }
    }
}
```