**Programación de Arduino DUE**

#include <Servo.h>

int ENB\_1 = 2;

int ENA\_1 = 3;

int ENA\_2 = 4;

int ENB\_2 = 5;

int IN1\_1 = 47;

int IN2\_1 = 45;

int IN3\_1 = 51;

int IN4\_1 = 53;

int IN1\_2 = 39;

int IN2\_2 = 41;

int IN3\_2 = 35;

int IN4\_2 = 33;

int LUZ = 25;

Servo camara1;

Servo camara2;

Servo brazo1;

Servo brazo2;

Servo pinza;

int cont1=40;

int cont2=90;

int cont3=0;

int cont4=25;

int cont5=50;

int val=0;

void setup(){

Serial.begin(9600);

pinMode(ENA\_1, OUTPUT);

pinMode(ENB\_1, OUTPUT);

pinMode(ENA\_2, OUTPUT);

pinMode(ENB\_2, OUTPUT);

pinMode(IN1\_1, OUTPUT);

pinMode(IN2\_1, OUTPUT);

pinMode(IN3\_1, OUTPUT);

pinMode(IN4\_1, OUTPUT);

pinMode(IN1\_2, OUTPUT);

pinMode(IN2\_2, OUTPUT);

pinMode(IN3\_2, OUTPUT);

pinMode(IN4\_2, OUTPUT);

pinMode(LUZ, OUTPUT);

camara1.attach(12);

camara2.attach(11);

brazo1.attach(10);

brazo2.attach(9);

pinza.attach(8);

camara1.write(cont1);

camara2.write(cont2);

brazo1.write(cont3);

brazo2.write(cont4);

pinza.write(cont5);

digitalWrite(LUZ, 0);

}

void loop(){

val = Serial.read();

if(-1 != val){

estado\_luz();

adelante();

atras();

izquierda();

derecha();

camara\_vertical();

camara\_horizontal();

brazo\_rotacional();

brazo\_vertical();

brazo\_pinza();}}

/\*--------------------------------------\*/

void estado\_luz(){

const char ON='G';

const char OFF='B';

if(val == ON){

digitalWrite(LUZ, 1);}

if(val == OFF){

digitalWrite(LUZ, 0);} }

/\*--------------------------------------\*/

void adelante(){

const char AD='8';

if(val == AD){

analogWriteResolution(12);

analogWrite(ENA\_1, 4095);

analogWrite(ENB\_1, 4095);

analogWrite(ENA\_2, 4095);

analogWrite(ENB\_2, 4095);

digitalWrite(IN1\_1, 1);

digitalWrite(IN2\_1, 0);

digitalWrite(IN3\_1, 1);

digitalWrite(IN4\_1, 0);

digitalWrite(IN1\_2, 0);

digitalWrite(IN2\_2, 1);

digitalWrite(IN3\_2, 0);

digitalWrite(IN4\_2, 1);

delay(50);

analogWrite(ENA\_1, 0);

analogWrite(ENB\_1, 0);

analogWrite(ENA\_2, 0);

analogWrite(ENB\_2, 0);}}

/\*--------------------------------------\*/

void atras(){

const char AT='5';

if(val == AT){

analogWriteResolution(12);

analogWrite(ENA\_1, 4095);

analogWrite(ENB\_1, 4095);

analogWrite(ENA\_2, 4095);

analogWrite(ENB\_2, 4095);

digitalWrite(IN1\_1, 0);

digitalWrite(IN2\_1, 1);

digitalWrite(IN3\_1, 0);

digitalWrite(IN4\_1, 1);

digitalWrite(IN1\_2, 1);

digitalWrite(IN2\_2, 0);

digitalWrite(IN3\_2, 1);

digitalWrite(IN4\_2, 0);

delay(50);

analogWrite(ENA\_1, 0);

analogWrite(ENB\_1, 0);

analogWrite(ENA\_2, 0);

analogWrite(ENB\_2, 0);}}

/\*--------------------------------------\*/

void izquierda(){

const char IZ='4';

if(val == IZ){

analogWriteResolution(12);

analogWrite(ENA\_1, 4095);

analogWrite(ENB\_1, 4095);

analogWrite(ENA\_2, 4095);

analogWrite(ENB\_2, 4095);

digitalWrite(IN1\_1, 1);

digitalWrite(IN2\_1, 0);

digitalWrite(IN3\_1, 1);

digitalWrite(IN4\_1, 0);

digitalWrite(IN1\_2, 1);

digitalWrite(IN2\_2, 1);

digitalWrite(IN3\_2, 1);

digitalWrite(IN4\_2, 1);

delay(300);

analogWrite(ENA\_1, 0);

analogWrite(ENB\_1, 0);

analogWrite(ENA\_2, 0);

analogWrite(ENB\_2, 0);}}

/\*--------------------------------------\*/

void derecha(){

const char DE='6';

if(val == DE){

analogWriteResolution(12);

analogWrite(ENA\_1, 4000);

analogWrite(ENB\_1, 4000);

analogWrite(ENA\_2, 4000);

analogWrite(ENB\_2, 4000);

digitalWrite(IN1\_1, 1);

digitalWrite(IN2\_1, 1);

digitalWrite(IN3\_1, 1);

digitalWrite(IN4\_1, 1);

digitalWrite(IN1\_2, 0);

digitalWrite(IN2\_2, 1);

digitalWrite(IN3\_2, 0);

digitalWrite(IN4\_2, 1);

delay(300);

analogWrite(ENA\_1, 0);

analogWrite(ENB\_1, 0);

analogWrite(ENA\_2, 0);

analogWrite(ENB\_2, 0);}}

/\*--------------------------------------\*/

void camara\_vertical(){

const char UP='I';

if(val == UP){

if (cont1 >= 0 && cont1 < 180){

cont1 = cont1 +5;

//Serial.println(cont1);

camara1.write(cont1);}}

const char DOWN='K';

if(val == DOWN){

if (cont1 > 0 && cont1 <= 180){

cont1 = cont1 -5;

//Serial.println(cont1);

camara1.write(cont1);}}}

/\*--------------------------------------\*/

void camara\_horizontal(){

const char IZQ='J';

if(val == IZQ){

if (cont2 >= 0 && cont2 < 180){

cont2 = cont2 +5;

//Serial.println(cont2);

camara2.write(cont2);}}

const char DER='L';

if(val == DER){

if (cont2 > 0 && cont2 <= 180){

cont2 = cont2 -5;

//Serial.println(cont2);

camara2.write(cont2);}}}

/\*--------------------------------------\*/

void brazo\_rotacional(){

const char HS='D';

if(val == HS){

if (cont3 >= 0 && cont3 < 180){

cont3 = cont3 +5;

//Serial.println(cont3);

brazo1.write(cont3);}}

const char AHS='A';

if(val == AHS){

if (cont3 > 0 && cont3 <= 180){

cont3 = cont3 -5;

//Serial.println(cont3);

brazo1.write(cont3);}}}

/\*--------------------------------------\*/

void brazo\_vertical(){

const char SB='W';

if(val == SB){

if (cont4 >= 0 && cont4 < 180){

cont4 = cont4 +5;

//Serial.println(cont4);

brazo2.write(cont4);}}

const char BB='S';

if(val == BB){

if (cont4 > 0 && cont4 <= 180){

cont4 = cont4 -5;

//Serial.println(cont4);

brazo2.write(cont4);}}}

/\*--------------------------------------\*/

void brazo\_pinza(){

const char CL='X';

if(val == CL){

if (cont5 >= 0 && cont5 < 180){

cont5 = cont5 +5;

//Serial.println(cont5);

pinza.write(cont5);}}

const char OP='Z';

if(val == OP){

if (cont5 > 0 && cont5 <= 180){

cont5 = cont5 -5;

//Serial.println(cont5);

pinza.write(cont5);}}}

/\*--------------------------------------\*/