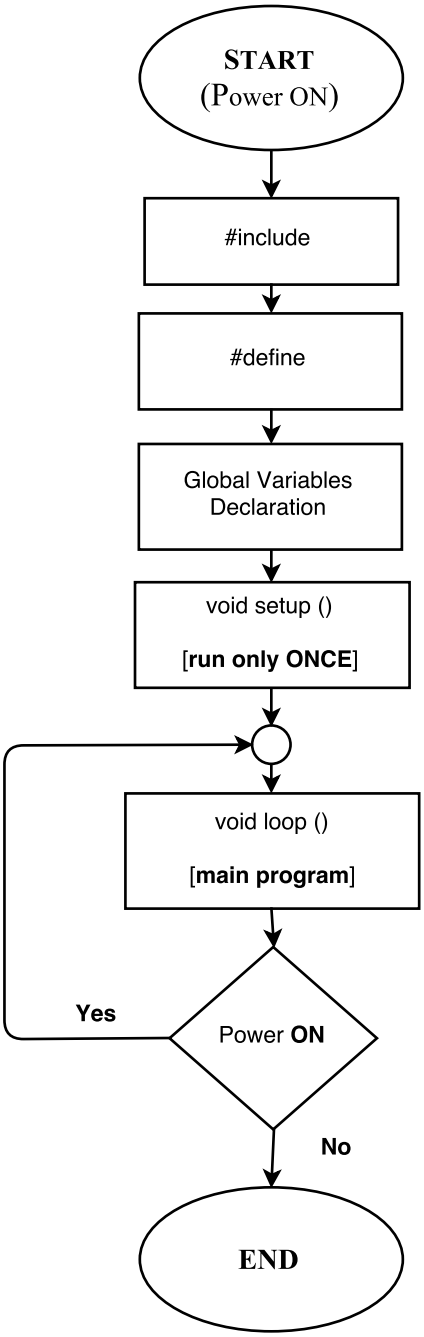
Line Following Robot



#define

Define in3, in4, and enB
in 3 & in 4 as motor direcion
enB as motor speed

#define Right_Dir1 12
#define Right_Dir2 11
#define Right_Speed 10

Define in1, in2, and enA
in 1 & in 2 as motor direcion
enA as motor speed

#define Left_Dir1 7
#define Left_Dir2 8
#define Left_Speed 6

IR left module is connected to A0 pin on Arduino
IR middle left module is connected to A1 pin on Arduino
IR middle right module is connected to A2 pin on Arduino IR right module is connected to A3 pin on Arduino

#define IR_Left A0
#define IR_Middle_Left A1
#define IR_Middle_Right A2
#define IR_Right A3

Global Variables Declaration

Declare a nominal speed of Right Motor

int nom_Rspeed = 100;

Declare a nominal speed of Left Motor

int nom_Lspeed = 110;

Declare IR for each side

int IR_L = 0;
int IR_ML = 0;
int IR_MR = 0;
int IR_R = 0;

Declare the sensor

int sensor_4 = 0;
int sensor_3 = 0;
int sensor_2 = 0;
int sensor_1 = 0;

A

Global Variables Declaration

A

Declare a limit for black line(detection)

int LimitBlackLine = 100;

Declare variable a

int a;

void setup ()

Initialize pin 12 as an DIGITAL OUTPUT pin
Initialize pin 11 as an DIGITAL OUTPUT pin

pinMode(Right_Dir1, OUTPUT);
pinMode(Right_Dir2, OUTPUT);

Initialize pin 12 as an DIGITAL OUTPUT pin
Initialize pin 13 as an DIGITAL OUTPUT pin

pinMode(Left_Dir1, OUTPUT);
pinMode(Left_Dir2, OUTPUT);

Setup serial communication

Serial.begin(9600);

Callling function to Motor Stop

Stop();

void loop ()

Calling function analog read

Read_Analog_IR();

Calling function for line following programme

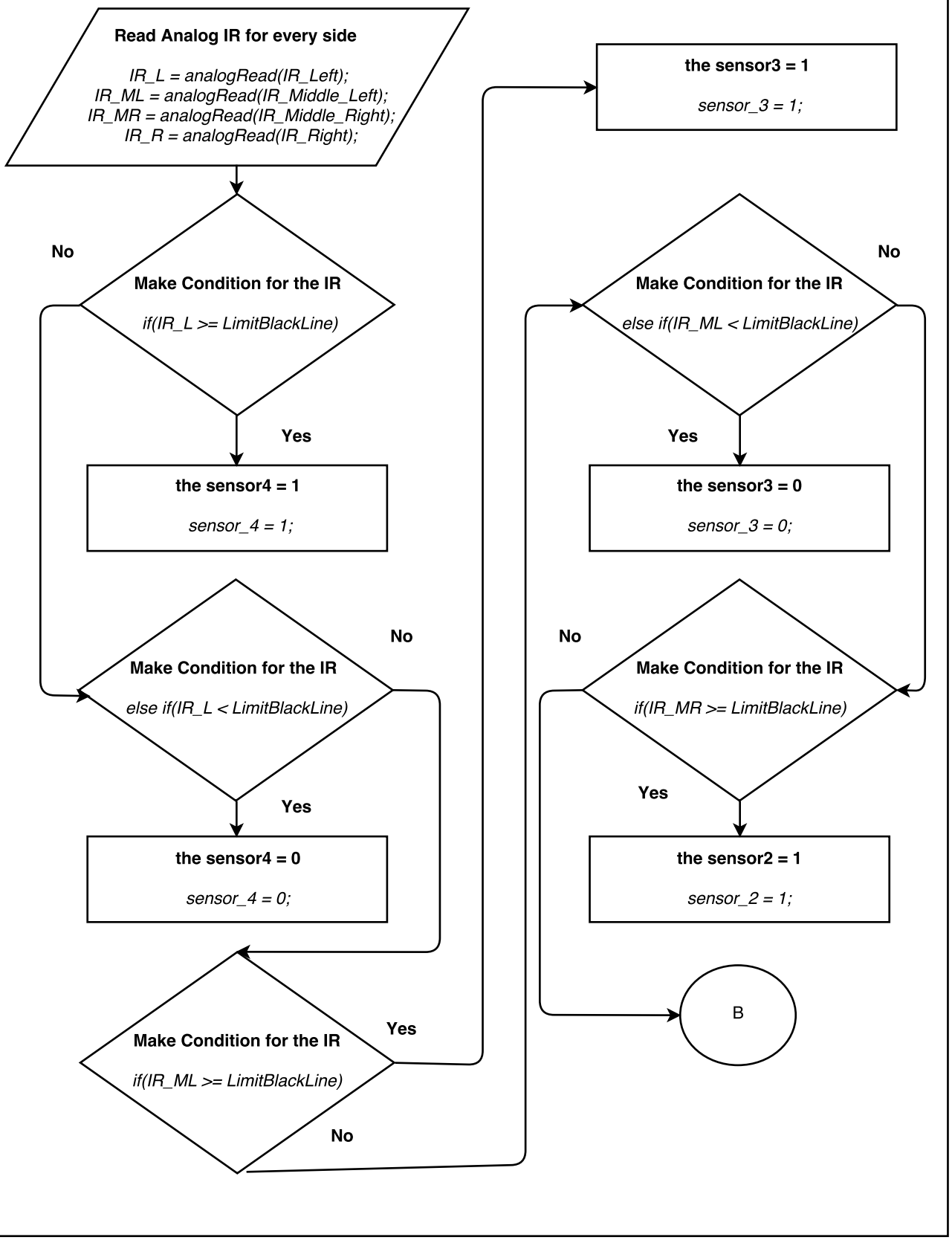
linefollowing();

void loop ()

Calling function analog read

Read_Analog_IR();

void Read_Analog_IR()

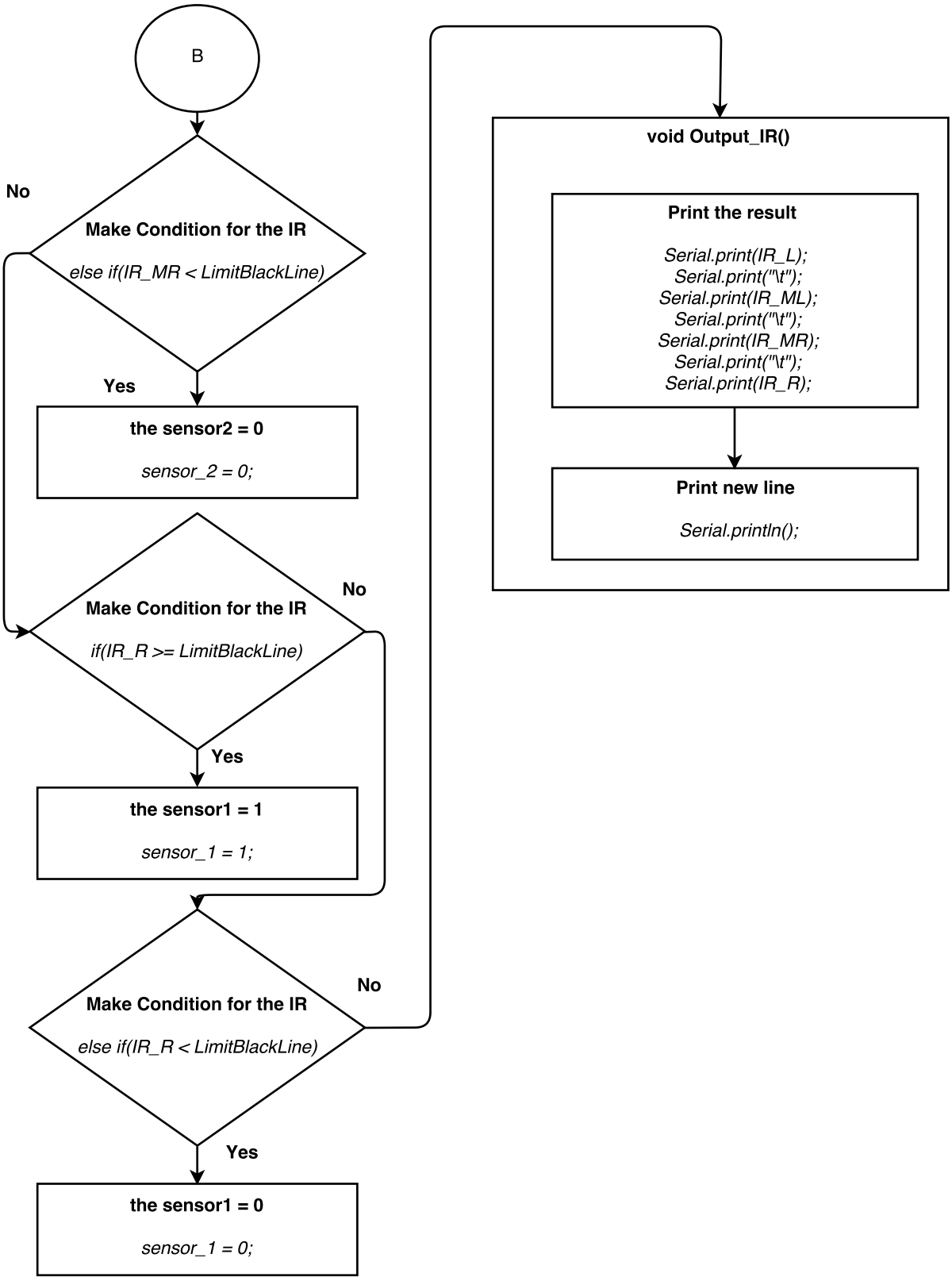


void loop ()

Calling function analog read

Read_Analog_IR();

void Read_Analog_IR()

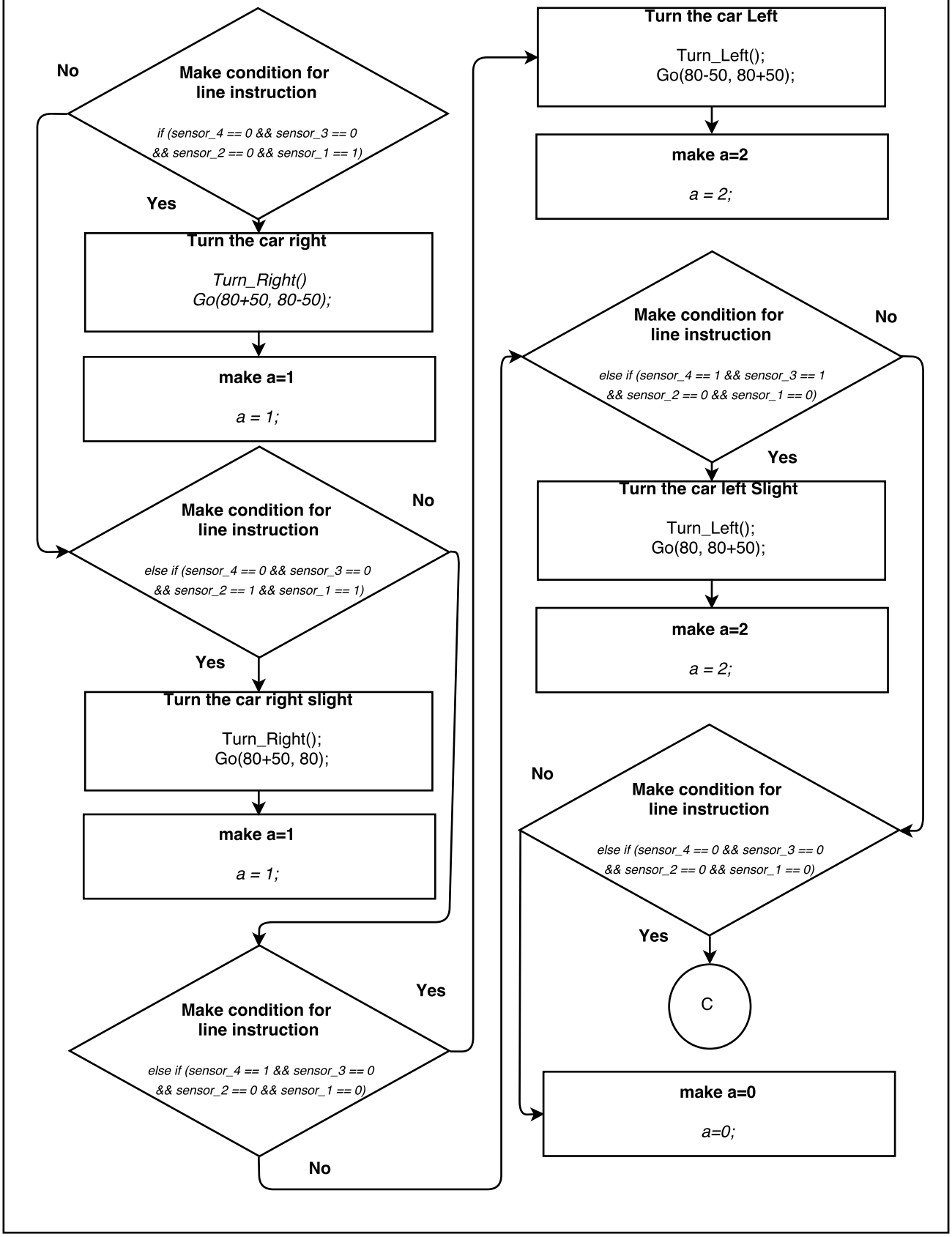


void loop ()

Calling function for line following programme

linefollowing();

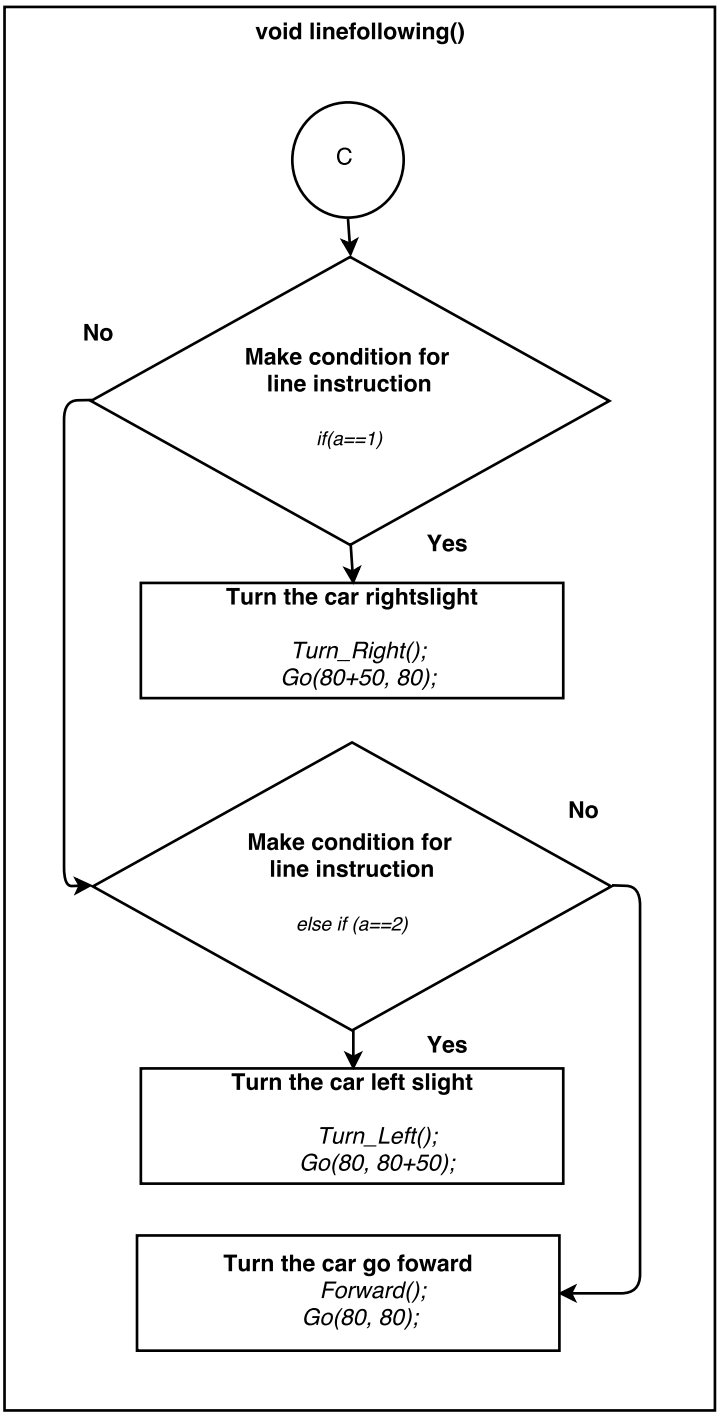
void linefollowing()

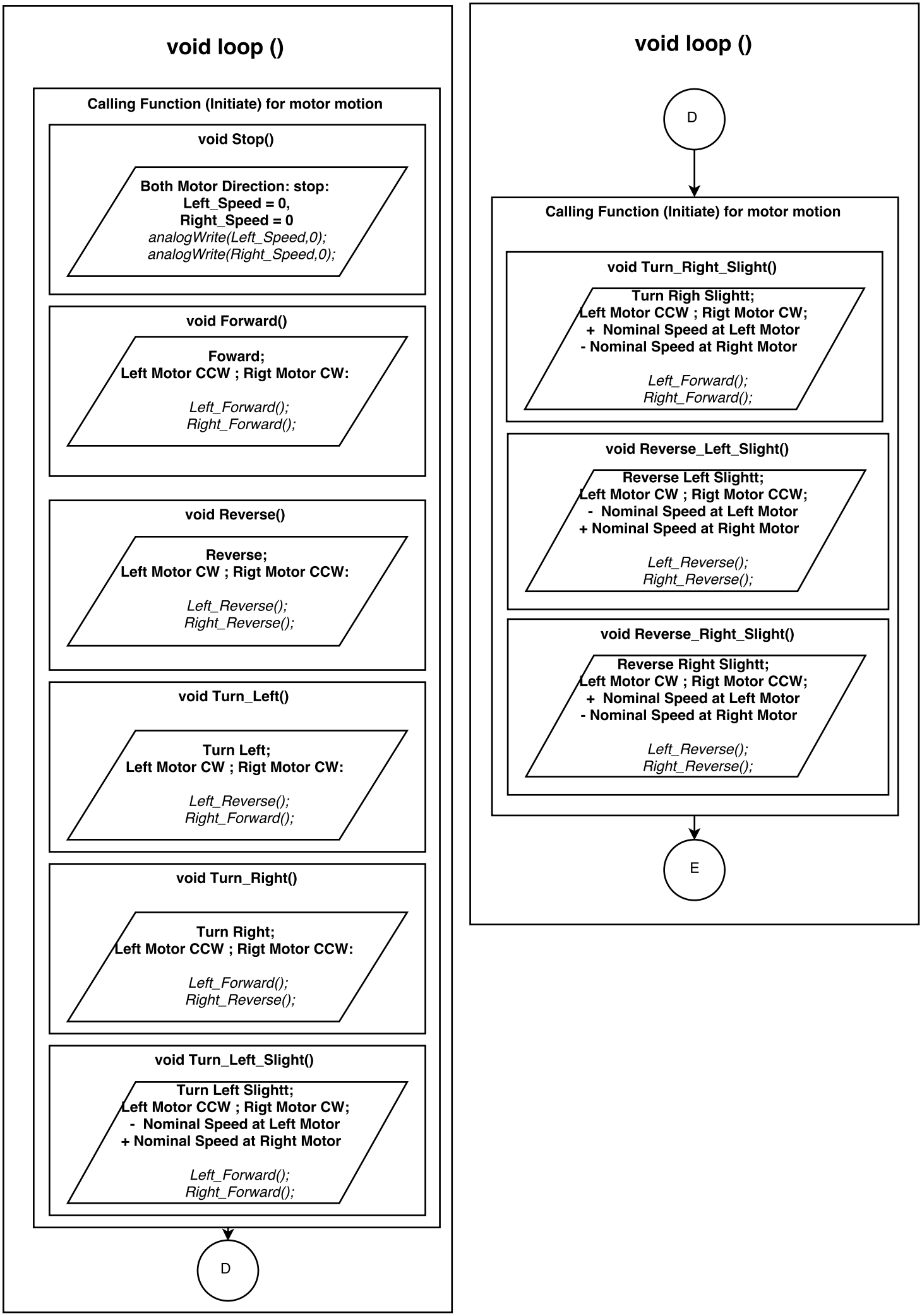


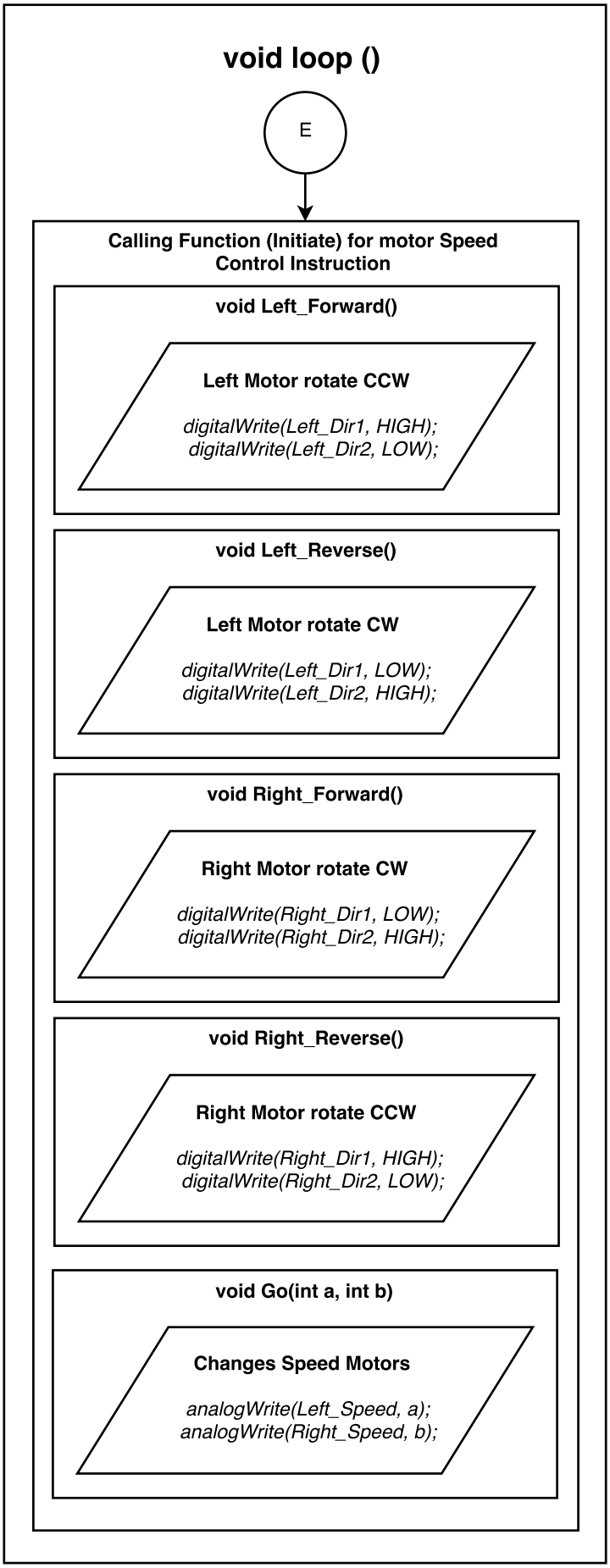
void loop ()

Calling function for line following programme

linefollowing();




void loop ()
Calling Function (Initiate) for motor motion
void Stop()
Both Motor Direction: stop:
Left_Speed = 0,
Right_Speed = 0
analogWrite(Left_Speed,0);
analogWrite(Right_Speed,0);
void Forward()
Foward;
Left Motor CCW ; Rigt Motor CW:
Left_Forward();
Right_Forward();
void Reverse()
Reverse;
Left Motor CW ; Rigt Motor CCW:
Left_Reverse();
Right_Reverse();
void Turn_Left()
Turn Left;
Left Motor CW ; Rigt Motor CW:
Left_Reverse();
Right_Forward();
void Turn_Right()
Turn Right;
Left Motor CCW ; Rigt Motor CCW:
Left_Forward();
Right_Reverse();
void Turn_Left_Slight()
Turn Left Slightt;
Left Motor CCW ; Rigt Motor CW;
- Nominal Speed at Left Motor
+ Nominal Speed at Right Motor
Left_Forward();
Right_Forward();
D
void loop ()
D
Calling Function (Initiate) for motor motion
void Turn_Right_Slight()
Turn Righ Slightt;
Left Motor CCW ; Rigt Motor CW;
+ Nominal Speed at Left Motor
- Nominal Speed at Right Motor
Left_Forward();
Right_Forward();
void Reverse_Left_Slight()
Reverse Left Slightt;
Left Motor CW ; Rigt Motor CCW;
- Nominal Speed at Left Motor
+ Nominal Speed at Right Motor
Left_Reverse();
Right_Reverse();
void Reverse_Right_Slight()
Reverse Right Slightt;
Left Motor CW ; Rigt Motor CCW;
+ Nominal Speed at Left Motor
- Nominal Speed at Right Motor
Left_Reverse();
Right_Reverse();
E


void loop ()
E
Calling Function (Initiate) for motor Speed Control Instruction
void Left_Forward()
Left Motor rotate CCW
digitalWrite(Left_Dir1, HIGH);
digitalWrite(Left_Dir2, LOW);
void Left_Reverse()
Left Motor rotate CW
digitalWrite(Left_Dir1, LOW);
digitalWrite(Left_Dir2, HIGH);
void Right_Forward()
Right Motor rotate CW
digitalWrite(Right_Dir1, LOW);
digitalWrite(Right_Dir2, HIGH);
void Right_Reverse()
Right Motor rotate CCW
digitalWrite(Right_Dir1, HIGH);
digitalWrite(Right_Dir2, LOW);
void Go(int a, int b)
Changes Speed Motors
analogWrite(Left_Speed, a);
analogWrite(Right_Speed, b);