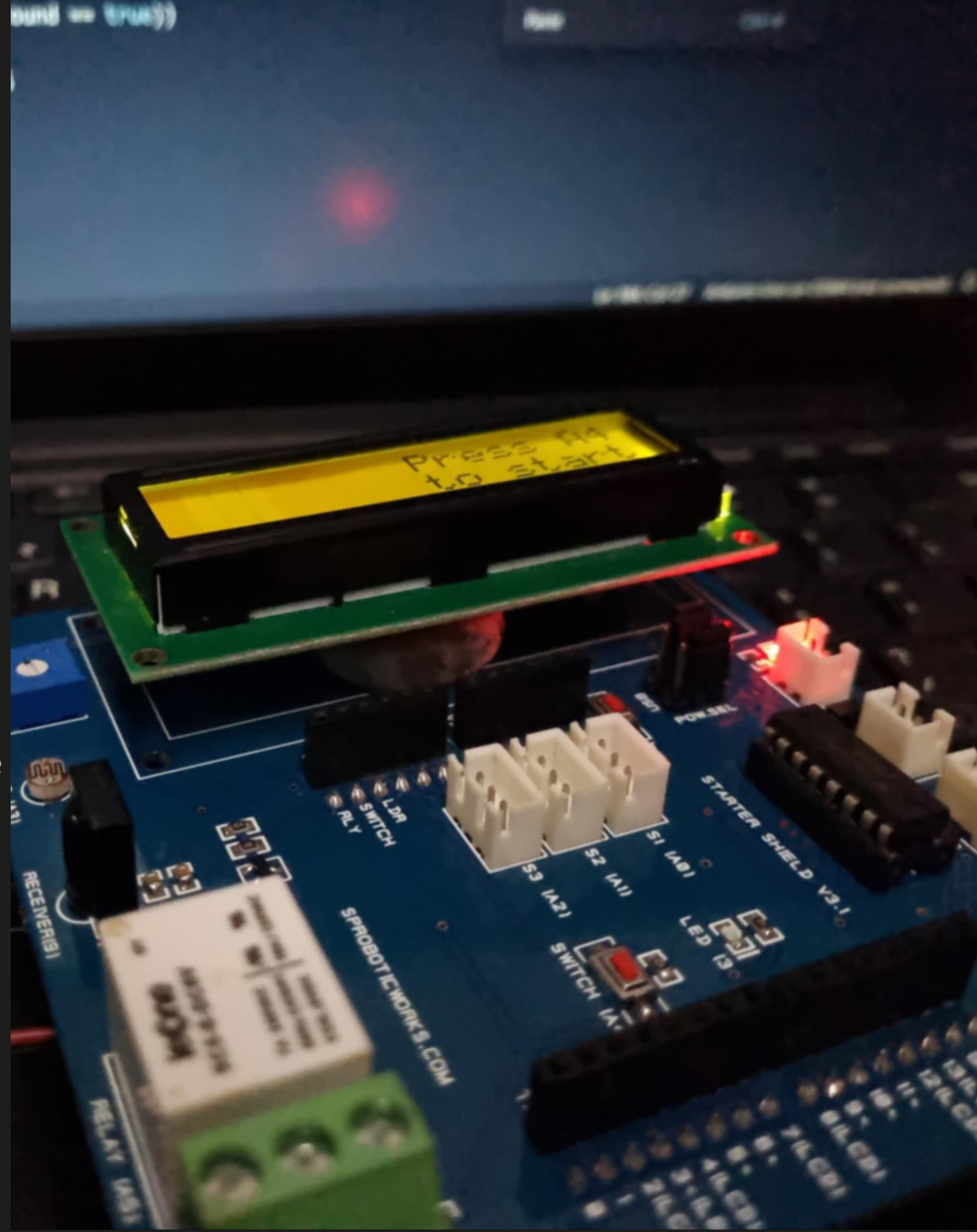


Dino Game on Arduino

Explore the exciting world of creating a classic Dino game on the Arduino Arduino platform. From selecting the right materials to implementing the game the game mechanics, this presentation will guide you through the entire entire development process step-by-step.



Materials Required

LCD display

Displays the game screen screen and score, bringing the Dino game game to life visually.

Switch key (Joystick)

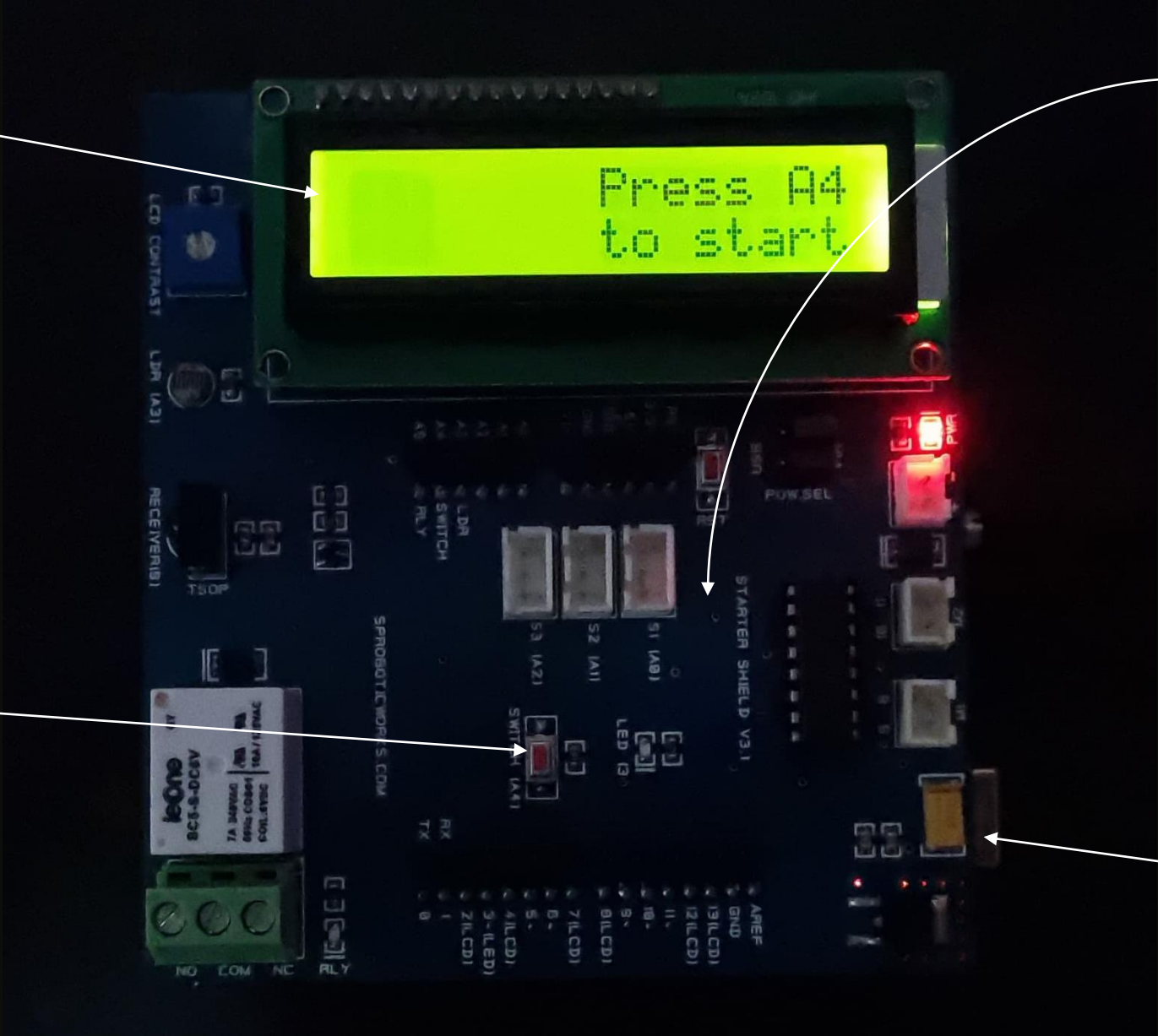
Allows the player to toggle the dino's position by clicking the key

Custom PCB

Provides the necessary electrical connections between the Arduino, button, button, and display.

UNO board

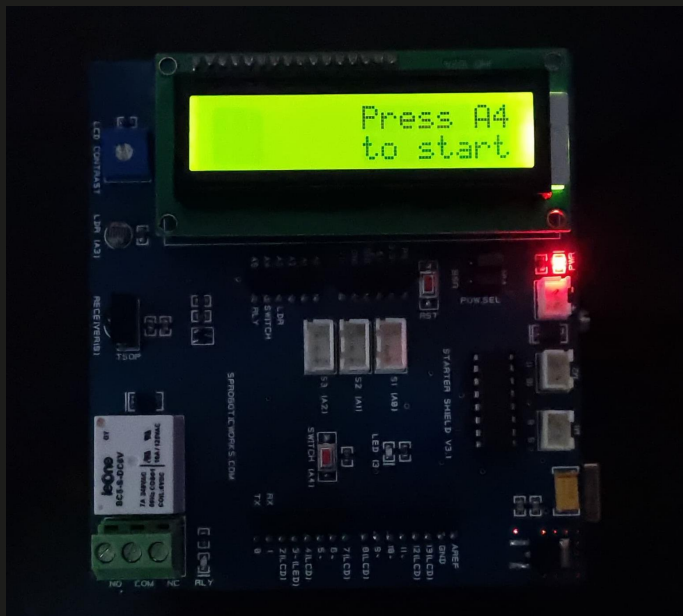
The brain of your project, the Arduino Uno board powers the game logic and controls the inputs and outputs.



Algorithm

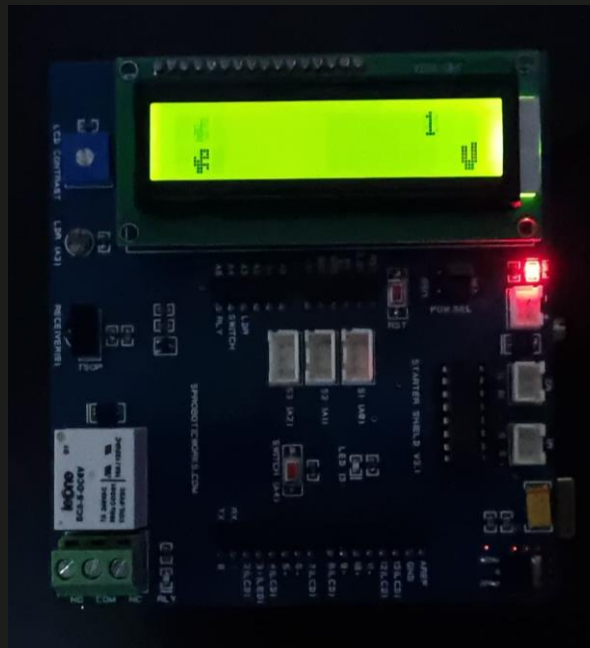
Game Initialization

Set up the Arduino, initialize game variables, and configure the LCD display and joystick module.



Player Input

Continuously read the joystick position (Switch) to detect player movement to jump or stay on ground

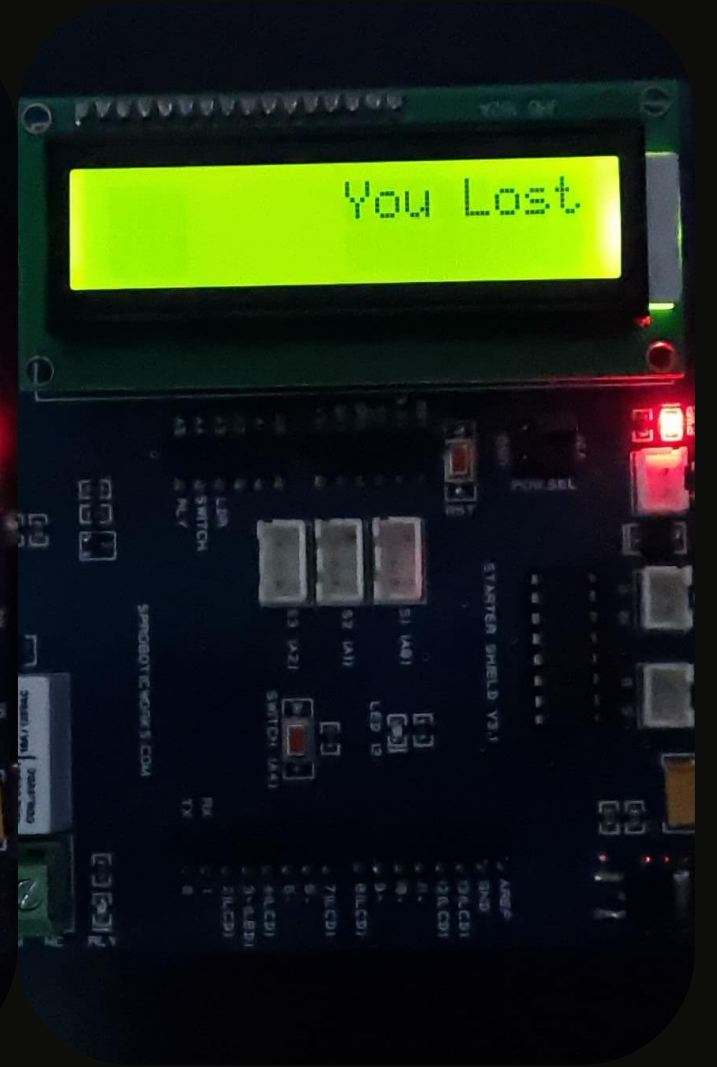
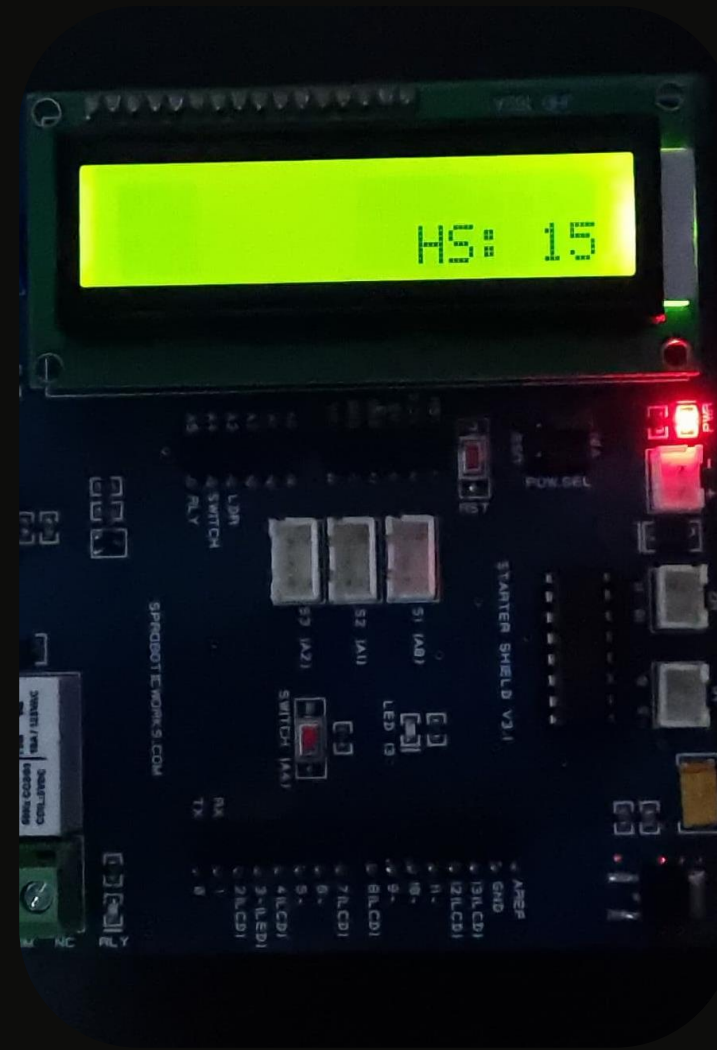
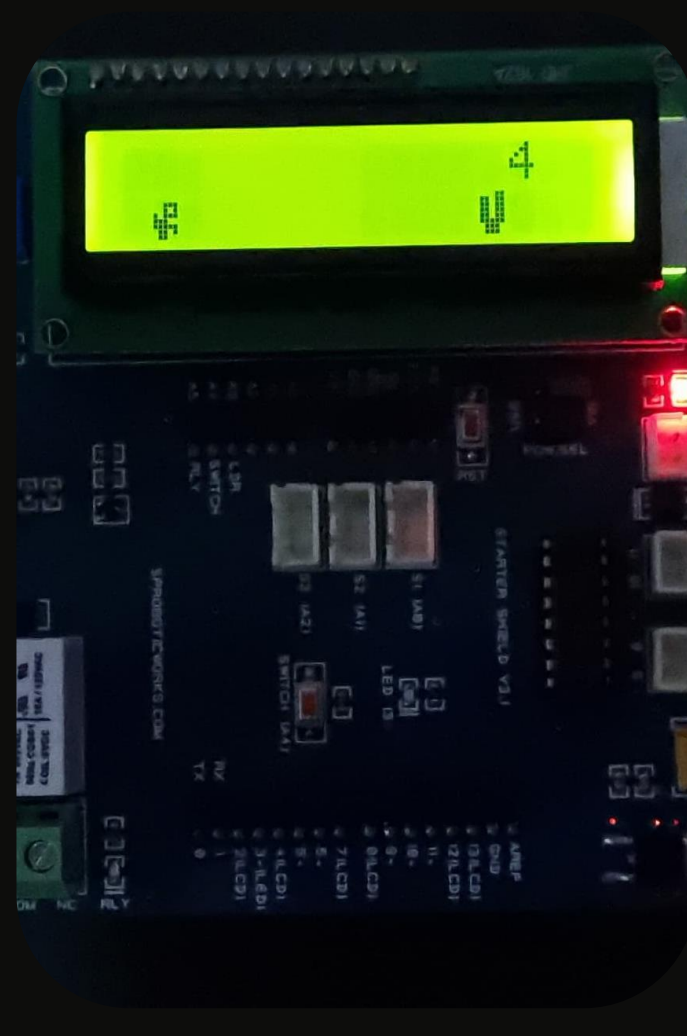
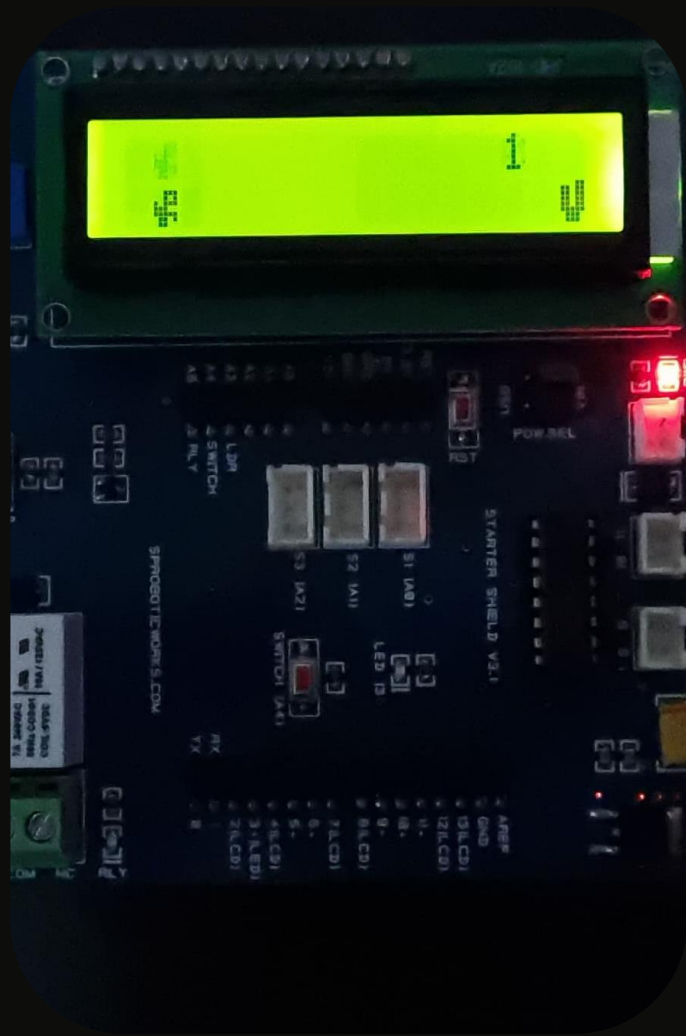


Game Logic

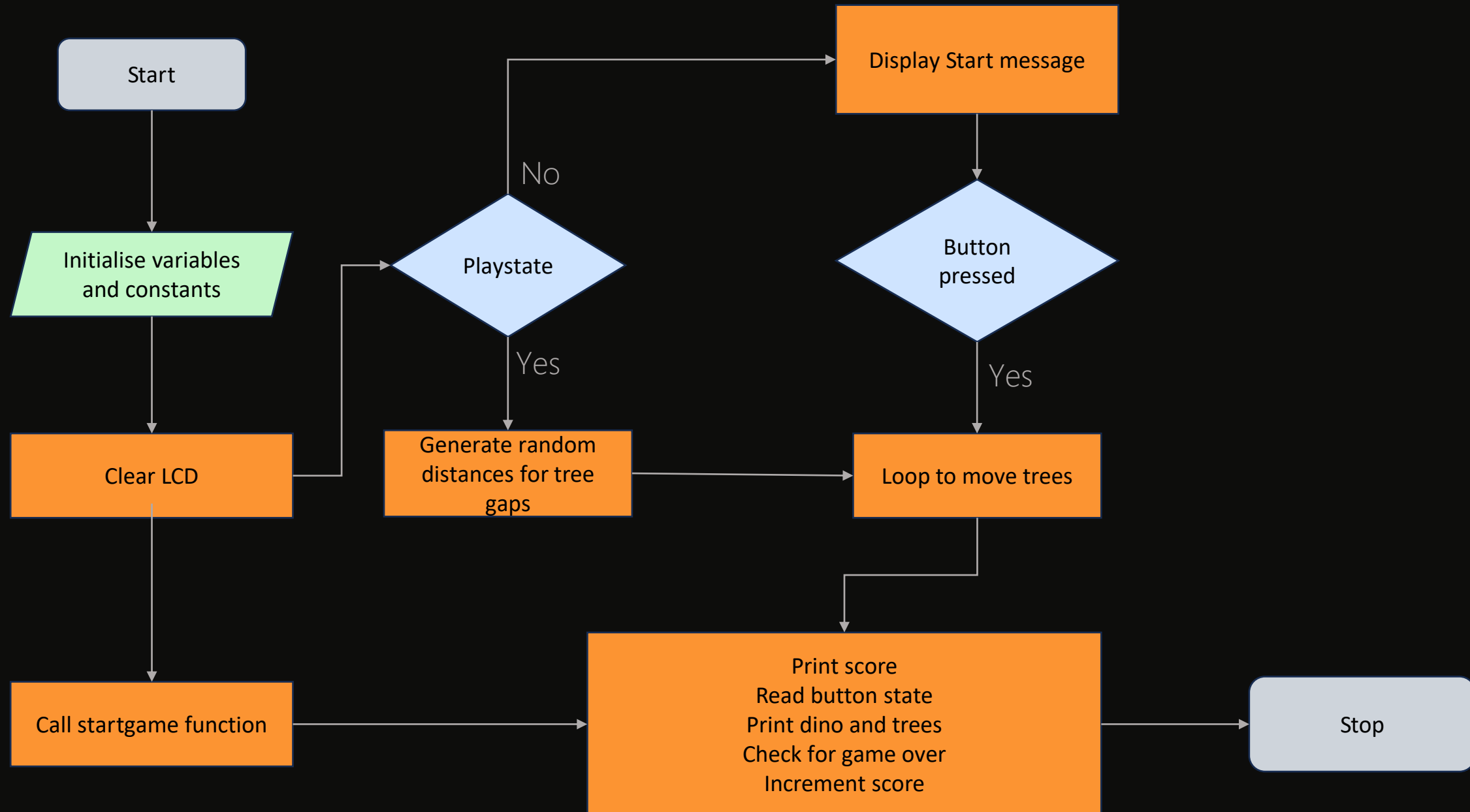
Update the dino's position, handle obstacle generation and movement, and calculate the player's score based on the distance traveled.



Working of the project



Flow Chart



Game Mechanics



Movement

Use the switch to control the dino's movements, i.e jumping.



Obstacles

Randomly generated obstacles appear on the screen, which the player must avoid by timing their jumps correctly.



Scoring

The player's score increases as they progress, with a game over triggered upon collision with an obstacle.



Restart

Allow the player to restart the game and try to beat their previous high score.

Source Code

// Variables declaration

```
#include <LiquidCrystal.h>
LiquidCrystal lcd(13,12,8,7,4,2);
```

```
boolean dinoOnGround = true;
```

```
int buttonPin = A4;
int buzzerPin = 3;
```

```
int buttonState = 0;
```

```
int highScore = 0;
```

```
boolean playState = false;
```

```
int dist = 0;
int distTwo = 0;
```

```
int score = 0;
```

// Bitmaps

```
byte dino [8]
{ B00000,
  B00111,
  B00101,
  B10111,
  B11100,
  B11111,
  B01101,
  B01100,
};
byte tree [8]
{
  B00011,
  B11011,
  B11011,
  B11011,
  B11011,
  B11111,
  B01110,
  B01110
};
```

// Initialising the game

```
void setup() {
  lcd.begin(16,2);
  lcd.createChar(7, dino);
  lcd.createChar(6, tree);
  lcd.setCursor(0,1);
  lcd.write(7);
  pinMode(buttonPin, INPUT);
  pinMode(buzzerPin, OUTPUT);
}
```

// Main loop

```
void loop() {  
  
  lcd.clear();  
  if(!playState){  
    lcd.setCursor(0,0);  
    lcd.print("      Press A4");  
    lcd.setCursor(0,1);  
    lcd.print("      to start");  
  
    if(digitalRead(buttonPin)==HIGH)  
    {  
      playState = true;  
    }  
  }  
  
  if(playState)  
  {  
    startGame();  
  }  
  delay(100);  
}
```

// Logic

```
void startGame(){  
  lcd.clear();  
  dist = random(4,9);  
  distTwo = random(4,9);  
  for(int i=16; i>=-(dist+distTwo); i--)  
  {  
    lcd.setCursor(13,0);  
    lcd.print(score);  
    int state = digitalRead(buttonPin);  
    if(state == HIGH)  
    {  
      buttonState = 1;  
      tone(buzzerPin,700,100);  
    }  
    else if(state == LOW)  
    {  
      buttonState = 0;  
    }  
    if(buttonState == 1){  
      lcd.setCursor(1,0);  
      lcd.write(7);  
      lcd.setCursor(1,1);  
      lcd.print(" ");  
      dinoOnGround = false;  
    }  
  }
```

```
  else{  
    lcd.setCursor(1,1);  
    lcd.write(7);  
    lcd.setCursor(1,0);  
    lcd.print(" ");  
    dinoOnGround = true;  
  }  
  
  lcd.setCursor(i,1);  
  lcd.write(6);  
  lcd.setCursor(i+1,1);  
  lcd.print(" ");  
  
  lcd.setCursor(i+dist,1);  
  lcd.write(6);  
  lcd.setCursor(i+dist+1,1);  
  lcd.print(" ");  
  
  lcd.setCursor(i+dist+distTwo,1);  
  lcd.write(6);  
  lcd.setCursor(i+dist+distTwo+1,1);  
  lcd.print(" ");
```



```

if((i+dist+distTwo)==-1){
    i=12;
}
if(i==1 && (dinoOnGround == true))
{ lcd.clear();
  lcd.print("          You Lost");
  delay(3000);
  if(score>highScore){
    highScore = score;
  }
  lcd.clear();
  lcd.setCursor(10,1);
  lcd.print("HS: ");
  lcd.print(highScore);
  playState = false;
  delay(3000);
  score = 0;
  break;
}
else if((i+dist == 1 && (dinoOnGround == true))
{ lcd.clear();
  lcd.print("          You Lost");
  if(score>highScore){
    highScore = score;
  }
}

```

```

    lcd.setCursor(10,1);
    lcd.print("HS: ");
    lcd.print(highScore);
    playState = false;
    delay(3000);
    score = 0;
    break;
}
else if(i+dist+disttwo==1 && (dinoOnGround == true))
{ lcd.clear();
  lcd.print("          You Lost");
  if(score>highScore){
    highScore = score;
  }
  lcd.setCursor(10,1);
  lcd.print("HS: ");
  lcd.print(highScore);
  playState = false;
  delay(3000);
  score = 0;
  break;
}
score++;
delay(500);
}
}

```

Meet the Team



Thank You

The Dino Game on Arduino is a thrilling project that combines hardware, hardware, software, and kills boredom.

