

Module 1

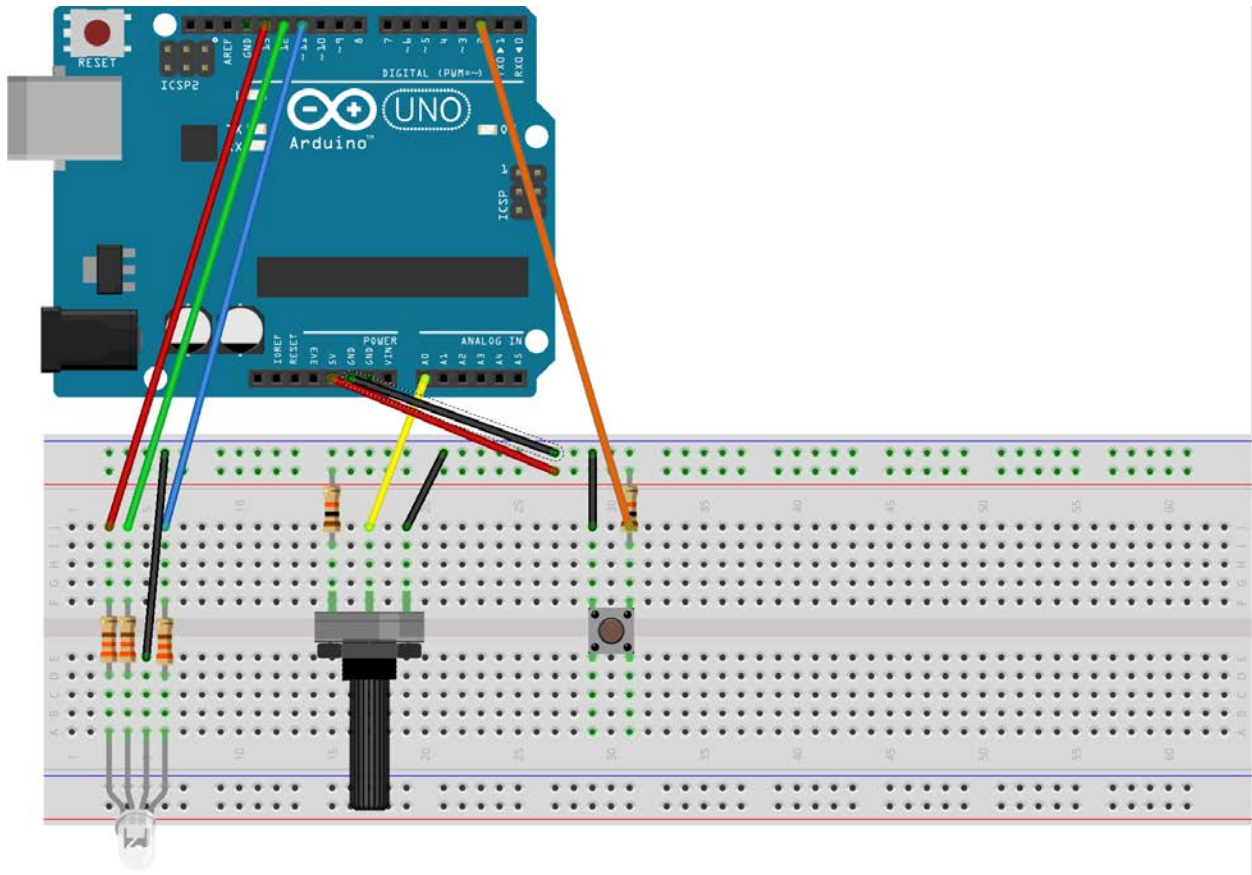
DE KLUIS OPDRACHT

JORT VAN WAES & BRAM VAN GILS

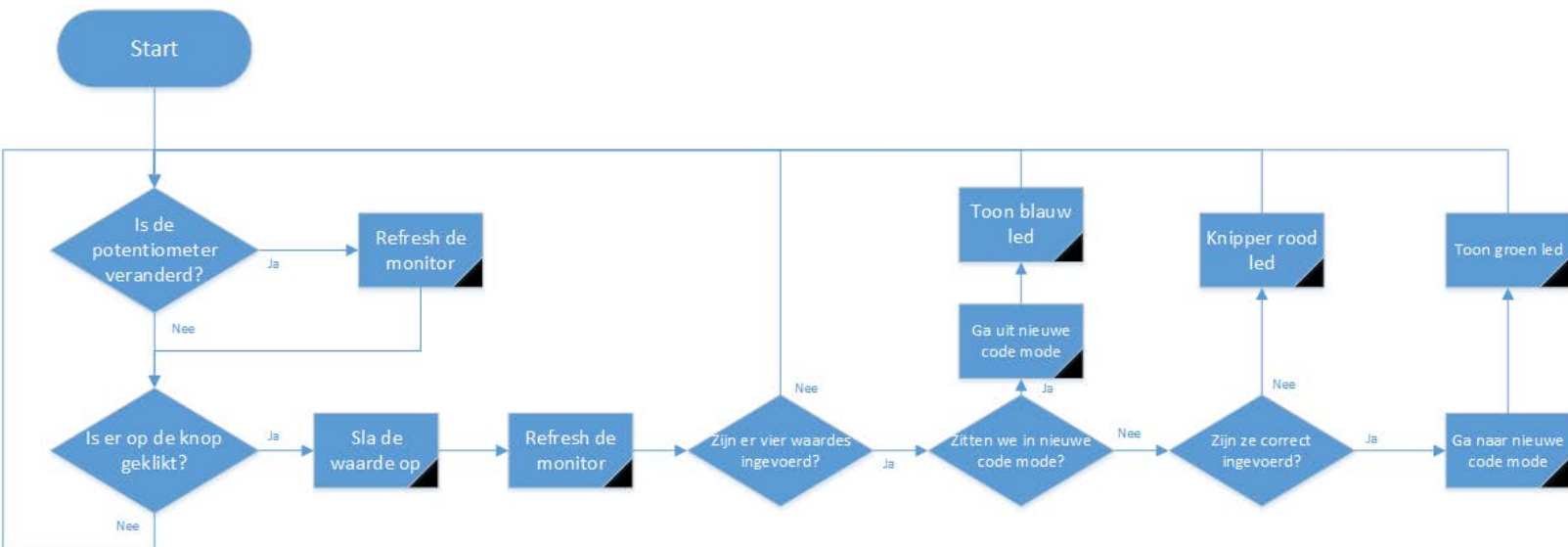
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Setup



Flow-Chart



Code

Initialiseren

```
// Output pins
int ledPinRood = 13;
int ledPinGroen = 12;
int ledPinBlauw = 11;

// Input pins
int PinKnop = 2;
int PinPot = A0;

// Calculation values
int Input = 0;
int LastInput = 10;
int Code1 = 1;
int Code2 = 2;
int Code3 = 3;
int Code4 = 4;
int Invoer1;
int Invoer2;
int Invoer3;
int Invoer4;
int CurrentState = 1;

// Button values
bool ButtonStateA;
bool ButtonStateB;

// String values
bool UpdateScreen = true;
bool Correct = false;
```

Setup

```
// Stratup and initialiser
void setup()
{
    // set outputs
    pinMode(ledPinGroen, OUTPUT);
    pinMode(ledPinRood, OUTPUT);
    pinMode(ledPinBlauw, OUTPUT);

    // set inputs
    pinMode(PinKnop, INPUT);
    pinMode(PinPot, INPUT);

    // set serial
    Serial.begin(9600);

    // begin sequence
    Red();
}
```

Hoofd-loop

```
void loop()
{
    // Checks if the potentiometer got shifted
    InputValueChanged();

    // Triggers whenever the potentiometer gets shifted
    if(UpdateScreen)
    {
        RefreshScreen();
    }

    // Triggers whenever the button gets pressed
    if(ButtonPress())
    {
        // Calculate all values
        SetValue();
        //Move up the process by one step
        CurrentState++;
        //Update the interface
        RefreshScreen();
    }
}
```

Knop controle

```
//Checks if the button has been pressed
bool ButtonPress()
{
    // Save button states
    ButtonStateA = digitalRead(PinKnop);
    delay(50);
    ButtonStateB = digitalRead(PinKnop);

    // Check
    if(ButtonStateA && !ButtonStateB)
    {
        return true;
    }
    else
    {
        return false;
    }
}
```

Potentiometer controle

```
//Checks if the button has been pressed
bool ButtonPress()
{
    // Save button states
    ButtonStateA = digitalRead(PinKnop);
    delay(50);
    ButtonStateB = digitalRead(PinKnop);

    // Check
    if(ButtonStateA && !ButtonStateB)
    {
        return true;
    }
    else
    {
        return false;
    }
}
```

Bereken waarden

```
// Sets the entered values and determines whether the correct sequence has been given
void SetValue()
{
    switch(CurrentState)
    {
        case 1:
            Invoer1 = Input;
            break;
        case 2:
            Invoer2 = Input;
            break;
        case 3:
            Invoer3 = Input;
            break;
        case 4:
            Invoer4 = Input;

            if(Code1 == Invoer1 && Code2 == Invoer2 && Code3 == Invoer3 && Code4 == Invoer4)
            {
                Correct = true;
            }
            else if(Code1 != Invoer1 || Code2 != Invoer2 || Code3 != Invoer3 || Code4 != Invoer4)
            {
                Correct = false;
            }

            break;
        case 6:
            Code1 = Input;
            break;
        case 7:
            Code2 = Input;
            break;
        case 8:
            Code3 = Input;
            break;
        case 9:
            Code4 = Input;
            break;
    }
}
```

Ververs de monitor

Regel – 1 & 2

// Prints out all lines of text into the serial monitor. Also decides when the leds should burn.

```
void RefreshScreen()
{
    if(CurrentState != 5 && CurrentState != 10)
    {
        // Line 1: Current mode
        if(CurrentState < 5)
        {
            Serial.println("Voer de toegangscode in:");
        }
        else
        {
            Serial.println("Voer nieuwe toegangs code in:");
        }

        // Line 2: Current value
        Serial.print("Waarde: ");
        Serial.println(Input);
    }
}
```


Regel – 3 als er nog geen vier waardes zijn ingevoerd

```
// Line 3: Action performed
switch(CurrentState)
{
    case 1:
        Serial.println("Voer eerste nummer in...");
        break;
    case 2:
        Serial.println("Voer tweede nummer in...");
        break;
    case 3:
        Serial.println("Voer derde nummer in...");
        break;
    case 4:
        Serial.println("Voer vierde nummer in...");
        break;
    case 6:
        Serial.println("Voer eerste nummer in...");
        break;
    case 7:
        Serial.println("Voer tweede nummer in...");
        break;
    case 8:
        Serial.println("Voer derde nummer in...");
        break;
    case 9:
        Serial.println("Voer vierde nummer in...");
        break;
}
ClearScreen(10);
}
```

Regel – 3 als er vier waardes zijn ingevoerd

```
else if(CurrentState == 5 && Correct)
{
    Serial.println("Juiste Toegangscode is ingevoerd");
    ClearScreen(12);
    Green3Sec();
    CurrentState++;
    RefreshScreen();
}
else if(CurrentState == 5)
{
    Serial.println("Verkeerde Toegangscode");
    ClearScreen(12);
    BlinkRed();
    CurrentState = 1;
    RefreshScreen();
}else
{
    Serial.println("Toegangs code Gewijzigd");
    ClearScreen(12);
    Blue3Sec();
    CurrentState = 1;
    RefreshScreen();
}
}
```

Scherm Opschonen

```
//Clear the screen by adding a certain amount of empty lines
void ClearScreen(int length)
{
    for (int i=0; i < length; i++)
    {
        Serial.println("");
    }
}
```

Standaard Licht

```
// Default colour the led emits
void Red()
{
    digitalWrite(ledPinRood,HIGH);
    digitalWrite(ledPinGroen,LOW);
    digitalWrite(ledPinBlauw,LOW);
}
```

Knipperend rood licht

```
// Let the led blink red for 3 seconds
void BlinkRed()
{
    Red();
    for (int i=0; i < 3; i++)
    {
        digitalWrite(ledPinRood,LOW);
        delay(500);
        digitalWrite(ledPinRood,HIGH);
        delay(500);
    }
    Red();
}
```

Groen Led

```
// Let the led burn green for 3 seconds
void Green3Sec()
{
    digitalWrite(ledPinRood, LOW);
    digitalWrite(ledPinGroen, HIGH);
    delay(3000);
    Red();
}
```

Blauw Led

```
// Let the led burn blue for 3 seconds
void Blue3Sec()
{
    digitalWrite(ledPinRood, LOW);
    digitalWrite(ledPinBlauw, HIGH);
    delay(3000);
    Red();
}
```

Video Materiaal

Om de code in actie te zien hebben wij deze video gemaakt

https://drive.google.com/file/d/1H3tJLooZD_nkfpzp0KXXDb23nHujJ8yt/view?usp=sharing