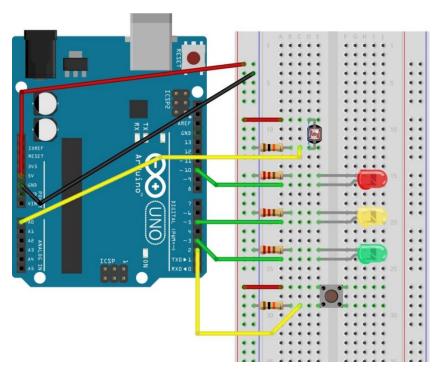


Arduino – eigene Befehle programmieren

Abbildung der verwendeten Schaltung:



Aufgabe 1)

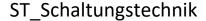
```
void greenLed3Blink() {
    digitalWrite(greenLedPin, LOW);
    delay(1000);
    digitalWrite(greenLedPin, HIGH);
    delay(1000);
    digitalWrite(greenLedPin, LOW);
    delay(1000);
    digitalWrite(greenLedPin, HIGH);
    delay(1000);
    digitalWrite(greenLedPin, LOW);
    delay(1000);
    digitalWrite(greenLedPin, HIGH);
    delay(1000);
```

Anmerkung:

Der Befehl greenLed3Blink ist hier so codiert, dass die grüne LED drei Mal ausund wieder eingeschaltet wird. Wenn die grüne LED nach dem Blinken dunkel bleiben soll, muss daher nach dem Aufruf von greenLed3Blink() der Befehl digitalWrite (greenLedPin, LOW); folgen (oder greenLed3Blink um diese Befehlszeile erweitert werden).

Aufgabe 2)

```
void greenLed3Blink() {
                                     void yellowLed3Blink() {
                                                                             void redLed3Blink() {
 digitalWrite(greenLedPin,LOW);
                                       digitalWrite(yellowLedPin,LOW);
                                                                               digitalWrite (redLedPin, LOW);
                                                                               delay(1000);
  delay(1000);
                                       delay(1000);
 digitalWrite(greenLedPin, HIGH);
                                       digitalWrite(yellowLedPin, HIGH);
                                                                               digitalWrite(redLedPin, HIGH);
  delay(1000);
                                       delay(1000);
                                                                               delay(1000);
 digitalWrite(greenLedPin,LOW);
                                       digitalWrite(yellowLedPin,LOW);
                                                                               digitalWrite(redLedPin,LOW);
  delay(1000);
                                       delay(1000);
                                                                               delay(1000);
 digitalWrite(greenLedPin,HIGH);
                                       digitalWrite(yellowLedPin, HIGH);
                                                                               digitalWrite(redLedPin, HIGH);
 delay(1000);
                                       delav(1000):
                                                                               delay(1000);
                                       digitalWrite(yellowLedPin,LOW);
 digitalWrite(greenLedPin,LOW);
                                                                               digitalWrite (redLedPin, LOW);
 delav(1000):
                                       delay(1000);
                                                                               delay(1000);
  digitalWrite(greenLedPin, HIGH);
                                       digitalWrite (yellowLedPin, HIGH);
                                                                               digitalWrite(redLedPin.HIGH):
  delay(1000);
                                       delay(1000);
                                                                               delay(1000);
                                     1
```





Aufgabe 3)

```
void led3Blink(int pin) {
    digitalWrite(pin, LOW);
    delay(1000);
    digitalWrite(pin, HIGH);
    delay(1000);
    digitalWrite(pin, LOW);
    delay(1000);
    digitalWrite(pin, HIGH);
    delay(1000);
    digitalWrite(pin, LOW);
    delay(1000);
    digitalWrite(pin, HIGH);
    delay(1000);
    digitalWrite(pin, HIGH);
    delay(1000);
```

Aufgabe 4)

```
void loop() {
int ledPin = 10;
                                   // D
                                                                   // a
int charPin = 5:
                                   digitalWrite(ledPin, HIGH);
                                                                   digitalWrite (ledPin, HIGH);
int wordPin = 3;
                                   delay(600);
                                                                   delay(200);
                                  digitalWrite(ledPin,LOW);
                                                                   digitalWrite(ledPin,LOW);
void setup() {
                                  delay(200);
                                                                   delay(200);
 pinMode(ledPin, OUTPUT);
                                  digitalWrite(ledPin.HIGH);
                                                                   digitalWrite(ledPin, HIGH);
  pinMode(charPin, OUTPUT);
                                  delay(200);
                                                                   delay(600);
  pinMode (wordPin, OUTPUT);
                                  digitalWrite(ledPin,LOW);
                                                                   digitalWrite (ledPin, LOW);
  digitalWrite(ledPin,LOW);
                                   delay(200);
                                                                   delay(200);
  digitalWrite (charPin, LOW);
                                   digitalWrite(ledPin, HIGH);
                                                                   digitalWrite (charPin, HIGH);
  digitalWrite (wordPin, LOW);
                                   delay(200);
                                                                   delay(600);
                                   digitalWrite(ledPin,LOW);
                                                                   digitalWrite(charPin,LOW);
                                   delay(200);
                                                                   delay(200);
                                   digitalWrite(charPin, HIGH);
                                   delay(600);
                                   digitalWrite (charPin, LOW);
                                   delay(200);
// s
                                 // p
digitalWrite(ledPin, HIGH);
                                 digitalWrite(ledPin, HIGH);
delay(200);
                                 delay(200);
                                                                   // a
digitalWrite(ledPin,LOW);
                                 digitalWrite(ledPin,LOW);
                                                                   digitalWrite(ledPin, HIGH);
delay(200);
                                 delay(200);
                                                                   delay(200);
digitalWrite(ledPin, HIGH);
                                 digitalWrite(ledPin, HIGH);
                                                                   digitalWrite(ledPin,LOW);
delay(200);
                                 delay(600);
                                                                   delay(200);
digitalWrite(ledPin,LOW);
                                 digitalWrite(ledPin,LOW);
                                                                   digitalWrite(ledPin, HIGH);
delay(200);
                                 delay(200);
                                                                   delay(600);
digitalWrite(ledPin, HIGH);
                                 digitalWrite(ledPin, HIGH);
                                                                   digitalWrite(ledPin,LOW);
delay(200);
                                 delay(600);
                                                                   delay(200);
                                 digitalWrite(ledPin,LOW);
digitalWrite(ledPin,LOW);
                                                                   digitalWrite (charPin, HIGH);
                                 delay(200);
delay(200);
                                                                   delay(600);
                                 digitalWrite(ledPin, HIGH);
digitalWrite(wordPin, HIGH);
                                                                   digitalWrite (charPin, LOW);
                                 delay(200);
delay(600);
                                                                   delay(200);
                                 digitalWrite(ledPin,LOW);
digitalWrite(wordPin,LOW);
                                 delay(200);
delay(5000);
                                 digitalWrite(charPin, HIGH);
                                 delay(600);
                                 digitalWrite (charPin, LOW);
                                 delay(200);
```



```
// s
                                  // s
digitalWrite(ledPin, HIGH);
                                  digitalWrite(ledPin, HIGH);
delay(200);
                                  delay(200);
digitalWrite(ledPin,LOW);
                                  digitalWrite(ledPin,LOW);
delay(200);
                                  delay(200);
digitalWrite(ledPin, HIGH);
                                  digitalWrite(ledPin, HIGH);
delay(200);
                                  delay(200);
digitalWrite(ledPin,LOW);
                                  digitalWrite(ledPin,LOW);
delay(200);
                                  delay(200);
digitalWrite(ledPin, HIGH);
                                  digitalWrite(ledPin, HIGH);
                                                                      digitalWrite(ledPin, HIGH);
delay(200);
                                  delay(200);
                                                                      delay(600);
digitalWrite(ledPin,LOW);
                                  digitalWrite(ledPin,LOW);
                                                                      digitalWrite(ledPin,LOW);
delay(200);
                                  delay(200);
                                                                      delay(200);
digitalWrite(charPin, HIGH);
                                  digitalWrite(charPin, HIGH);
                                                                       digitalWrite(wordPin,HIGH);
delay(600);
                                  delay(600);
                                                                      delay(600);
digitalWrite(charPin,LOW);
                                  digitalWrite (charPin, LOW);
                                                                      digitalWrite(wordPin,LOW);
delay(200);
                                  delay(200);
                                                                      delay(5000);
Aufgabe 5)
                void shortSignal(int pin) {
                                                       void longSignal(int pin) {
                  digitalWrite(pin, HIGH);
                                                          digitalWrite(pin, HIGH);
                  delay(200);
                                                          delay(600);
                  digitalWrite(pin,LOW);
                                                          digitalWrite(pin,LOW);
                  delay(200);
                                                          delay(200);
                                                         1
                 1
int ledPin = 10;
                                  void loop() {
                                   // D
int charPin = 5;
                                    longSignal(ledPin);
int wordPin = 3;
                                    shortSignal(ledPin);
                                    shortSignal(ledPin);
void setup() {
                                                                      shortSignal(ledPin);
                                   digitalWrite(charPin, HIGH);
  pinMode(ledPin, OUTPUT);
                                                                      longSignal(ledPin);
                                   delay(600);
  pinMode(charPin, OUTPUT);
                                                                      digitalWrite(charPin, HIGH);
                                   digitalWrite(charPin,LOW);
  pinMode(wordPin, OUTPUT);
                                                                      delay(600);
                                    delay(200);
  digitalWrite(ledPin,LOW);
                                                                      digitalWrite(charPin,LOW);
                                    // a
  digitalWrite (charPin, LOW);
                                                                      delay(200);
                                    shortSignal(ledPin);
  digitalWrite (wordPin, LOW);
                                                                      // s
                                    longSignal(ledPin);
                                                                      shortSignal(ledPin);
 }
                                    digitalWrite(charPin, HIGH);
                                                                      shortSignal(ledPin);
                                    delay(600);
                                                                      shortSignal(ledPin);
                                    digitalWrite(charPin, LOW);
                                                                      digitalWrite(charPin, HIGH);
                                    delay(200);
                                                                      delay(600);
                                    // s
                                                                      digitalWrite(charPin,LOW);
                                    shortSignal(ledPin);
                                                                      delay(200);
                                    shortSignal(ledPin);
                                                                      // s
                                    shortSignal(ledPin);
                                                                      shortSignal(ledPin);
                                    digitalWrite(wordPin, HIGH);
                                                                      shortSignal(ledPin);
                                    delay(600);
                                                                      shortSignal(ledPin);
                                    digitalWrite(wordPin,LOW);
                                                                      digitalWrite(charPin, HIGH);
                                    delay(5000);
                                                                      delay(600);
                                                                      digitalWrite (charPin, LOW);
                                   // p
                                                                      delay(200);
                                   shortSignal(ledPin);
                                                                      // t
                                   longSignal(ledPin);
                                                                      longSignal(ledPin);
                                   longSignal(ledPin);
                                                                       digitalWrite(wordPin, HIGH);
                                   shortSignal(ledPin);
                                                                      delay(600);
                                   digitalWrite (charPin, HIGH);
                                                                      digitalWrite(wordPin,LOW);
                                   delay(600);
                                                                      delay(5000);
                                   digitalWrite (charPin, LOW);
                                   delay(5000);
```



```
Aufgabe 6) void letterD(int pin) { void letterA(int pin) { void letterS(int pin) {
                                        shortSignal(pin);
                                                                    shortSignal(pin);
                longSignal(pin);
                                          longSignal(pin);
                                                                    shortSignal(pin);
                shortSignal(pin);
                                                                      shortSignal(pin);
                shortSignal(pin);
                                         }
                                                                    }
              }
                         void letterP(int pin) {
                           shortSignal(pin);
                                                    void letterT(int pin) {
                           longSignal(pin);
                                                     longSignal(pin);
                                                    }
                           longSignal(pin);
                            shortSignal(pin);
                          1
            void loop() {
                                                   // p
              letterD(ledPin);
                                                  letterP(ledPin);
              digitalWrite (charPin, HIGH);
                                                  digitalWrite(charPin, HIGH);
              delay(600);
                                                  delay(600);
              digitalWrite(charPin,LOW);
                                                  digitalWrite(charPin,LOW);
              delay(200);
                                                  delay(200);
              letterA(ledPin)
                                                   // a
              digitalWrite(charPin, HIGH);
                                                   letterA(ledPin);
              delay(600);
                                                   digitalWrite (charPin, HIGH);
              digitalWrite(charPin,LOW);
                                                   delay(600);
              delay(200);
                                                   digitalWrite(charPin,LOW);
              letterS(ledPin);
                                                   delay(200);
              digitalWrite(wordPin, HIGH);
                                                   // s
              delay(600);
                                                   letterS(ledPin);
              digitalWrite(wordPin,LOW);
                                                   digitalWrite(charPin, HIGH);
              delay(5000);
                                                   delay(600);
                                                   digitalWrite(charPin,LOW);
                                                   delay(200);
                                                   // s
                                                   letterS(ledPin);
                                                   digitalWrite(charPin, HIGH);
                                                   delav(600):
                                                   digitalWrite (charPin, LOW);
                                                   delay(200);
                                                    letterT(ledPin);
                                                    digitalWrite(wordPin, HIGH);
                                                    delay(600);
                                                    digitalWrite (wordPin, LOW);
                                                    delay(5000);
```

<u>Anmerkung:</u> Zusätzlich könnten noch Befehle für die Zeichen- bzw. Worttrennung codiert und verwendet werden...