

# Lærerveiledning - 7-Segment Display

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*Kurs: Arduino*

*Tema: Elektronikk, Tekstbasert*

*Fag: Programmering, Teknologi*

*Klassetrinn: 5.-7. klasse, 8.-10. klasse, Videregående skole*

## Informasjon til veiledere

### Læringsmål

Oppgaven «7-Segment Display» introduserer flere konsepter:

- En teknikk for å utforske ukjente komponenter
- 7-Segment Display
- Funksjoner og funksjonskall
- Switch statements

### Merk

Denne oppgaven krever at elevene holder styr på en god del ledninger, og sluttresultatet vil se noe kaotisk ut.



# Løsningsforslag

## Display som teller opp og ned med to knapper

Kobling:





Kode:

```
void blank() {  
    for (int led = 6; led <= 13; led++) {  
        digitalWrite(led, LOW);  
    }  
}
```

```
void tegn_0() {  
    blank();  
    digitalWrite(7, HIGH);  
    digitalWrite(8, HIGH);  
    digitalWrite(9, HIGH);  
    digitalWrite(12, HIGH);  
    digitalWrite(11, HIGH);  
    digitalWrite(10, HIGH);  
}
```

```
void tegn_1() {  
    blank();  
    digitalWrite(9, HIGH);  
    digitalWrite(12, HIGH);  
}
```

```
void tegn_2() {  
    blank();  
    digitalWrite(8, HIGH);  
    digitalWrite(9, HIGH);  
    digitalWrite(6, HIGH);  
    digitalWrite(10, HIGH);  
    digitalWrite(11, HIGH);  
}
```

```
void tegn_3() {  
    blank();  
    digitalWrite(8, HIGH);  
    digitalWrite(9, HIGH);  
    digitalWrite(6, HIGH);  
    digitalWrite(12, HIGH);  
    digitalWrite(11, HIGH);  
}
```

```
void tegn_4() {  
    blank();  
    digitalWrite(7, HIGH);  
    digitalWrite(6, HIGH);  
    digitalWrite(9, HIGH);  
    digitalWrite(12, HIGH);  
}
```

```
}

void tegn_5() {
    blank();
    digitalWrite(8, HIGH);
    digitalWrite(7, HIGH);
    digitalWrite(6, HIGH);
    digitalWrite(12, HIGH);
    digitalWrite(11, HIGH);
}

void tegn_6() {
    blank();
    digitalWrite(8, HIGH);
    digitalWrite(7, HIGH);
    digitalWrite(10, HIGH);
    digitalWrite(11, HIGH);
    digitalWrite(12, HIGH);
    digitalWrite(6, HIGH);
}

void tegn_7() {
    blank();
    digitalWrite(8, HIGH);
    digitalWrite(9, HIGH);
    digitalWrite(12, HIGH);
}

void tegn_8() {
    blank();
    digitalWrite(8, HIGH);
    digitalWrite(7, HIGH);
    digitalWrite(6, HIGH);
    digitalWrite(12, HIGH);
    digitalWrite(10, HIGH);
    digitalWrite(11, HIGH);
    digitalWrite(9, HIGH);
}

void tegn_9() {
    blank();
    digitalWrite(8, HIGH);
    digitalWrite(7, HIGH);
    digitalWrite(6, HIGH);
    digitalWrite(9, HIGH);
    digitalWrite(12, HIGH);
}

int minus = 5;
```

```

int minus = 3;
int pluss = 4;

int tall = 0;

void setup() {
    for (int led = 6; led <= 13; led++) {
        pinMode(led, OUTPUT);
    }
    pinMode(pluss, INPUT_PULLUP);
    pinMode(minus, INPUT_PULLUP);
    tegn_0();
}

void oppdater() {
    switch (tall) {
        case 1:
            tegn_1();
            break;
        case 2:
            tegn_2();
            break;
        case 3:
            tegn_3();
            break;
        case 4:
            tegn_4();
            break;
        case 5:
            tegn_5();
            break;
        case 6:
            tegn_6();
            break;
        case 7:
            tegn_7();
            break;
        case 8:
            tegn_8();
            break;
        case 9:
            tegn_9();
            break;
        case 10:
            tall = 9;
            break;
        default:
            tegn_0();
            tall = 0;
            break;
    }
}

```

```

        break,
    }

    digitalWrite(13, HIGH);
    delay(150);
    digitalWrite(13, LOW);
    delay(150);
}

void loop() {
    if (digitalRead(pluss) == LOW) {
        tall += 1;
        oppdater();
    }
    if (digitalRead(minus) == LOW) {
        tall -= 1;
        oppdater();
    }
}

```

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