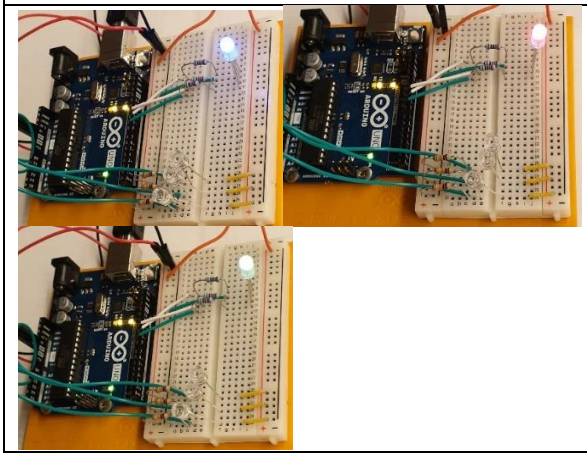
Oppgave 1.

Project 04

Color Mixing Lamp

```
const int greenLED = 9;
const int redLED = 11;
const int blueLED = 10;

const int redSensor = A0;
const int greenSensor = A1;
const int blueSensor = A2;

int redValue = 0;
int blueValue = 0;
int greenValue = 0;

void lesAnalog() {
  redValue = analogRead(redSensor);
  delay(5);
  blueValue = analogRead(blueValue);
  delay(5);
  greenValue = analogRead(greenValue);
}

void setLEDColor(int red, int blue, int green) {
  analogWrite(redLED, red);
  analogWrite(blueLED, blue);
  analogWrite(greenLED, green);
}

 void setup() {
  Serial.begin(9600);

  pinMode(greenLED, OUTPUT);
  pinMode(blueLED, OUTPUT);
  pinMode(redLED, OUTPUT);
}

 void loop() {
  lesAnalog();
  delay(50);
  Serial.print(" Grønn: ");
  Serial.print(greenValue);
  Serial.print(" Rød: ");
  Serial.print(redValue);
  Serial.print(" Blue: ");
  Serial.print(blueValue);
  setLEDColor(redValue, blueValue, greenValue);
}
```

Kode



Oppkobling

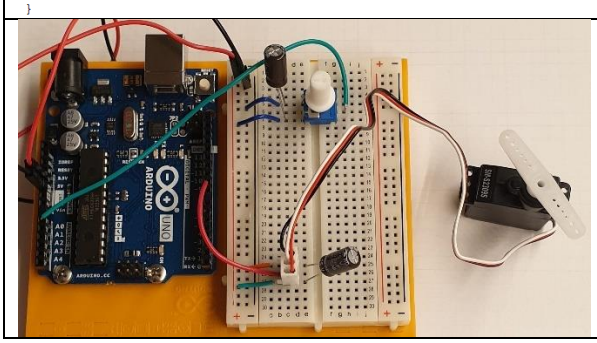
Oppgave 2.

Project 05

Mood Cue

```
Servo servo;

const int servoPin = 9;
const int potentiometerPin = A0;
int potentiometerValue;
int angle;

int skaler(int potVal, int skalaLav, int skalaHoy, int vinkelLav, int vinkelHoy) {
  return (potVal - skalaLav) * (vinkelHoy - vinkelLav) / (skalaHoy - skalaLav) + vinkelLav;
}

void setup() {
  servo.attach(servoPin);

  Serial.begin(9600);
}

 void loop() {
  potentiometerValue = analogRead(potentiometerPin);
  angle = skaler(potentiometerValue, 0, 1023, 0, 179);
  Serial.print(", angle: ");
  Serial.print(angle);
  servo.write(angle);
  delay(15);
}
```

Kode



Oppkobling:
Løsningen fungerte som forventet. Når jeg skrude på potensiometeret så roterer servoen i reting jeg skrur. Når jeg stopper å rotere potensiometeret stopper servoen.

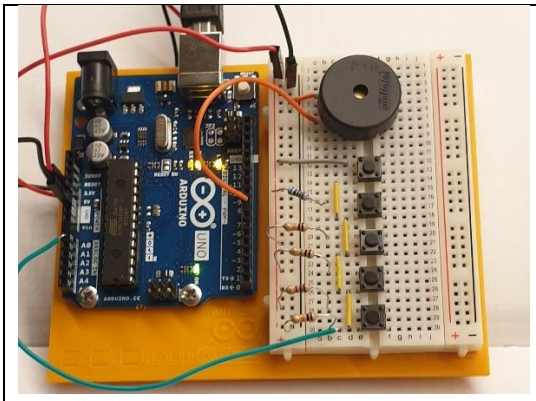
Oppgave 3.

Project 07

Keyboard Instrument

```
const int speakerPin = 8;
const int inputPin = A0;
 int notes[] = {262, 294, 330, 349, 440};

void setup() {
  Serial.begin(9600);
}

void loop() {
  int keyValue = analogRead(inputPin);

  Serial.print(keyValue);

  if (keyValue == 1023) {
    tone(speakerPin, notes[0]);
  } else if (keyValue >= 990 && keyValue <= 1010) {
    tone(speakerPin, notes[1]);
  } else if (keyValue >= 505 && keyValue <= 515) {
    tone(speakerPin, notes[2]);
  } else if (keyValue >= 5 && keyValue <= 10) {
    tone(speakerPin, notes[3]);
  } else if(keyValue >= 921 && keyValue <= 941) {
    tone(speakerPin, notes[4]);
  } else {
    noTone(speakerPin);
  }
}
```

Koden



Oppkobling
Min løsning: var og legge til en til knapp til i seriekoblingen. Så sjekket hvike input verdi om kom fra A0 med analogRead. Fikk verdiem 931. Siden koden sjekker hvis verdien er innenfor +-10 på alle knappene så la til denne koden:

```
  else if(keyValue >= 921 && keyValue <= 941) {
  tone(speakerPin, notes[4]);
 }
```

Som tilsvarer +-10 på 931. La til elemene 440 i notes [ ]. Ser sånn ut i arrayet:
int notes[]={262,294,330,349,440};

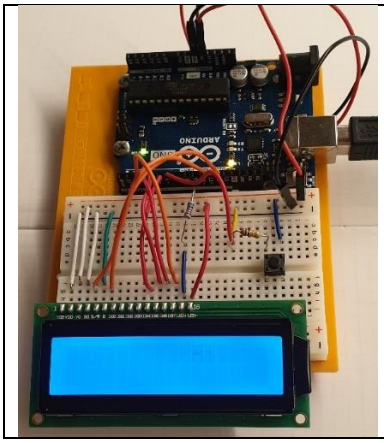
Oppgave 4.

Project 11

Crystal Ball

```
#include <LiquidCrystal.h>

LiquidCrystal lcd(12,11,5,4,3,2);

const int switchPin = 6;
int switchState = 0;

int currentPosition = -1;

int nextPosition() {
  if(currentPosition == 31) {
    currentPosition = 0;
    return currentPosition;
  } else {
    currentPosition++;
  }
  return currentPosition > 15 ? (currentPosition - 16) : currentPosition;
}
int nextLevel() {
  return currentPosition >= 16 ? 1 : 0;
}

void setup() {

  lcd.begin(16,2);
}

void loop() {
  switchState = digitalRead(switchPin);
  int pos = nextPosition();
  int level = nextLevel();

  if(switchState == HIGH) {
    currentPosition = 0;
    pos = 0;
    level = 0;
  }

  lcd.clear();
  lcd.setCursor(pos,level);
  lcd.print("Hi");
  delay(50);

}
```

kode

	oppkobling