

LAMPIRAN

Lampiran 1 Program Arduino

```
//Main_Program//
#include <DHT.h>
#include <DHT_U.h>
#include <LiquidCrystal_I2C.h>
LiquidCrystal_I2C lcd(0x27, 16, 2);
#define DHTPIN 2
#define DHTTYPE DHT11
#define PB_START 3
#define ledMerah 10
#define ledHijau 11
#define IGNITION 6
#define SELENOID 7
#define FAN 8
#define MOTOR 9

DHT dht(DHTPIN, DHTTYPE);

bool buttonStatus = false;

int RHlimit = 16;
int Tupper = 65;
int Tlower = 40;

void setup() {
  Serial.begin(9600);
  pinMode(PB_START, INPUT_PULLUP);
```

```

pinMode(ledMerah, OUTPUT);
pinMode(ledHijau, OUTPUT);
pinMode(IGNITION, OUTPUT);
pinMode(SELENOID, OUTPUT);
pinMode(FAN, OUTPUT);
pinMode(MOTOR, OUTPUT);

dht.begin();

lcd.init();

lcd.backlight();

attachInterrupt(digitalPinToInterrupt(PB_START), startButton, FALLING);
}

void startButton() {
  buttonStatus = !buttonStatus;
}

void conditionChecking(float RH, float T) {
  if (RH > RHlimit) {
    digitalWrite(FAN, HIGH);
    digitalWrite(MOTOR, HIGH);
    if (T <= Tlower) {
      //SELENOID ON
      selenoidHandler(true);
    }
  }
  if (T >= Tupper) {
    //SELENOID OFF
    selenoidHandler(false);
  }
} else {
  //FAN, MOTOR, SELENOID OFF

```

```

solenoidHandler(false);
digitalWrite(FAN, LOW);
digitalWrite(MOTOR, LOW);
}
}

void loop() {
float RH = dht.readHumidity();
float T = dht.readTemperature();

if (isnan(RH) || isnan(T)) {
Serial.println(F("Sensor DHT gagal terbaca!"));
return;
}

updateDisplay(RH, T);
if (buttonStatus) { //RUN
digitalWrite(ledMerah, HIGH);
digitalWrite(ledHijau, LOW);
conditionChecking(RH, T);
} else { //STOP
digitalWrite(ledMerah, LOW);
digitalWrite(ledHijau, HIGH);

//FAN, MOTOR, SELENOID OFF
solenoidHandler(false);
digitalWrite(FAN, LOW);
digitalWrite(MOTOR, LOW);
}
}

```

```

}
//Solenoid_Igntion//
int i, prev, prev2, counter;
int setCycleDivider = 4;
int setCycleDuration = 2000;
bool pulse = false;
bool prevTrigger = false;

void ignitionOnOffTimer(int CycleDuration, int CycleDivider) {
    int Now = millis();
    if (Now - prev >= CycleDuration && pulse == false) {
        pulse = true;
        prev = Now;
    } else if (Now - prev >= (CycleDuration / CycleDivider) && pulse == true) {
        if (i == 1) {
            pulse = false;
        } else if (i > (CycleDivider - 1)) {
            i = 0;
        }
        i++;
    }
    digitalWrite(IGNITION, pulse);
    Serial.println(pulse);
}

```

```

void ignitionTriggerHandler(int TotalDuration, bool Trigger) {
    if (!prevTrigger && (counter < TotalDuration)) {
        ignitionOnOffTimer(setCycleDuration, setCycleDivider);
    }
}

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    counter++;
} else {
    digitalWrite(IGNITION, LOW);
    pulse=false;
    prevTrigger = Trigger;
    counter = 0;
}
}

void triggerReset(){
    prevTrigger=false;
}

void selenoidHandler(bool Trigger) {
    int Now2 = millis();
    if (Now2 - prev2 >= 100) {
        prev2 = Now2;
        if (Trigger) {
            digitalWrite(SELENOID, HIGH);
            ignitionTriggerHandler(100, true); //set ignition Total Duration >>> ON 10S
        } else {
            digitalWrite(IGNITION, LOW);
            digitalWrite(SELENOID, LOW);
            triggerReset();
        }
    }
}

}

//UpdateDisplay//

```

```
long int nowMillis, prevMillis;
```

```
void updateDisplay(float RH, float T) {
```

```
    nowMillis = millis();
```

```
    if (nowMillis - prevMillis > 1000) { //Siklus 1 detik(1000ms)
```

```
        prevMillis = nowMillis;
```

```
        lcd.setCursor(0, 0);
```

```
        lcd.print("RH: ");
```

```
        lcd.setCursor(4, 0);
```

```
        lcd.print("  ");
```

```
        lcd.setCursor(4, 0);
```

```
        lcd.print(RH);
```

```
        lcd.setCursor(0, 1);
```

```
        lcd.print("T: ");
```

```
        lcd.setCursor(3, 1);
```

```
        lcd.print("  ");
```

```
        lcd.setCursor(3, 1);
```

```
        lcd.print(T);
```

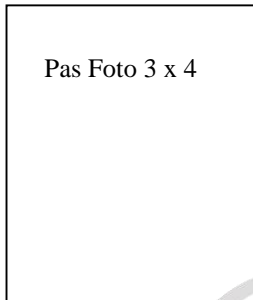
```
    }
```

```
}
```



LAMPIRAN
Lampiran 2 Daftar Riwayat Hidup

DAFTAR RIWAYAT HIDUP



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- Karya Ilmiah : RANCANG BANGUN ALAT PENGERING GABAH MENGGUNAKAN SENSOR *DHT-21* BERBASIS MIKRO KONTROLER *ARDUINO MEGA 2560*