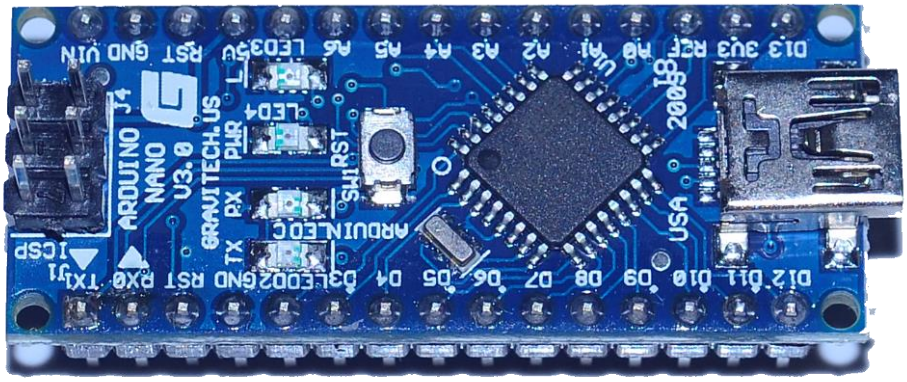
LAMPIRAN

A. FOTO KOMPONEN :

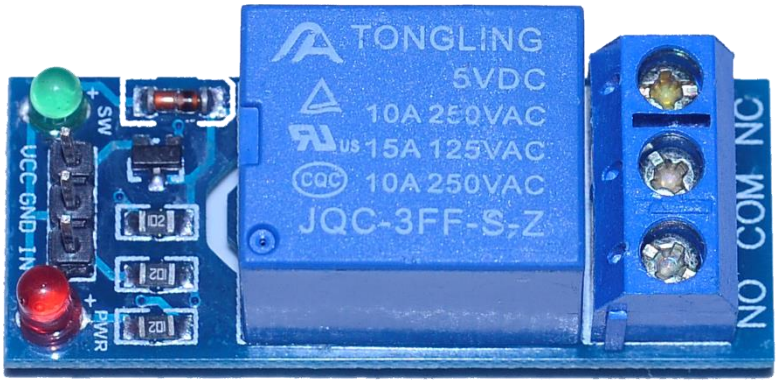
1) *Water flow sensor G1”*

2) Arduino Nano Versi3.0



3) *Buzzer*

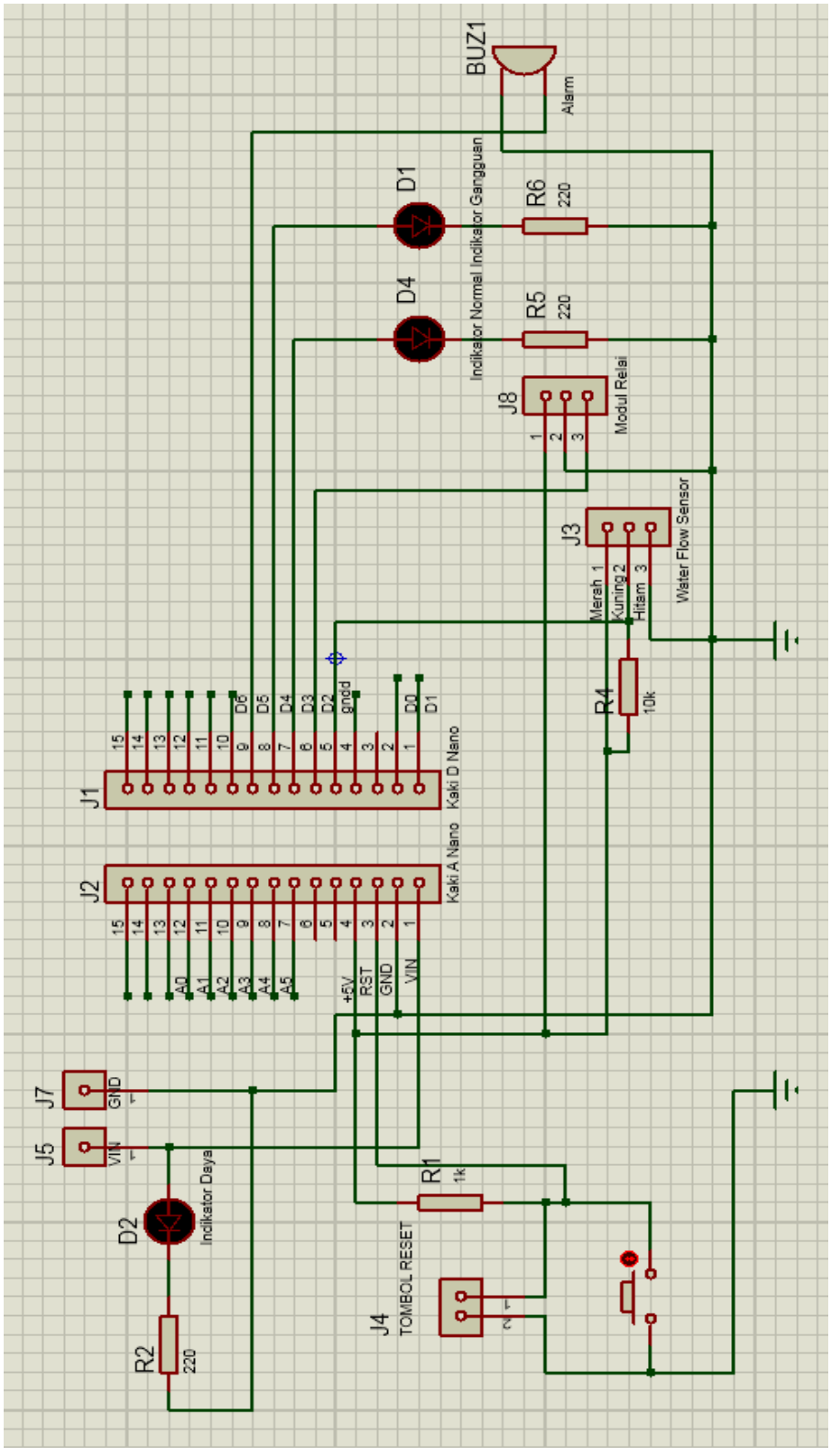
4) *Relay Module 1 Channel*



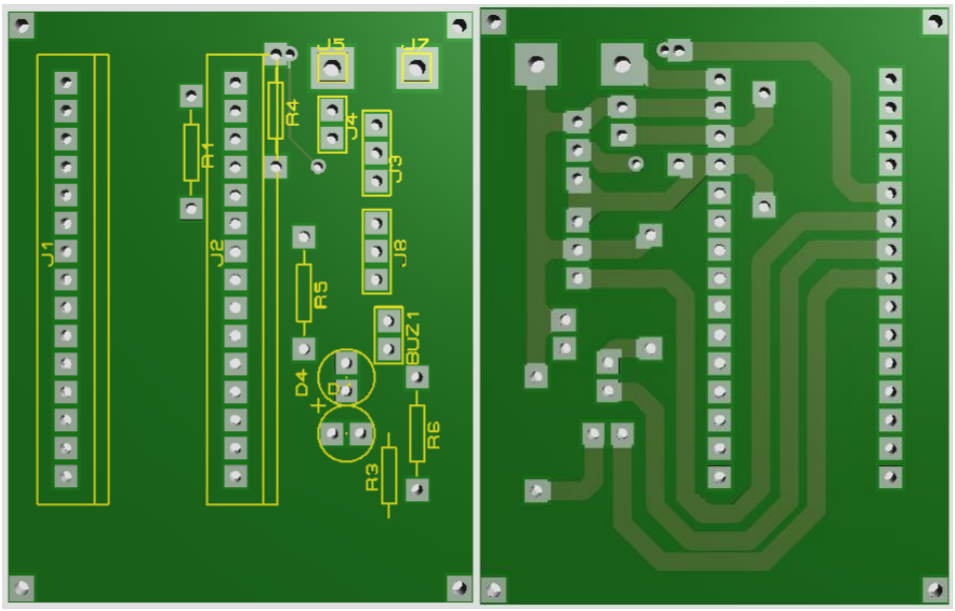
5) *Push Button*

B. SKEMA PERANCANGAN RANGKAIAN

1) Skema Rangkaian Keseluruhan

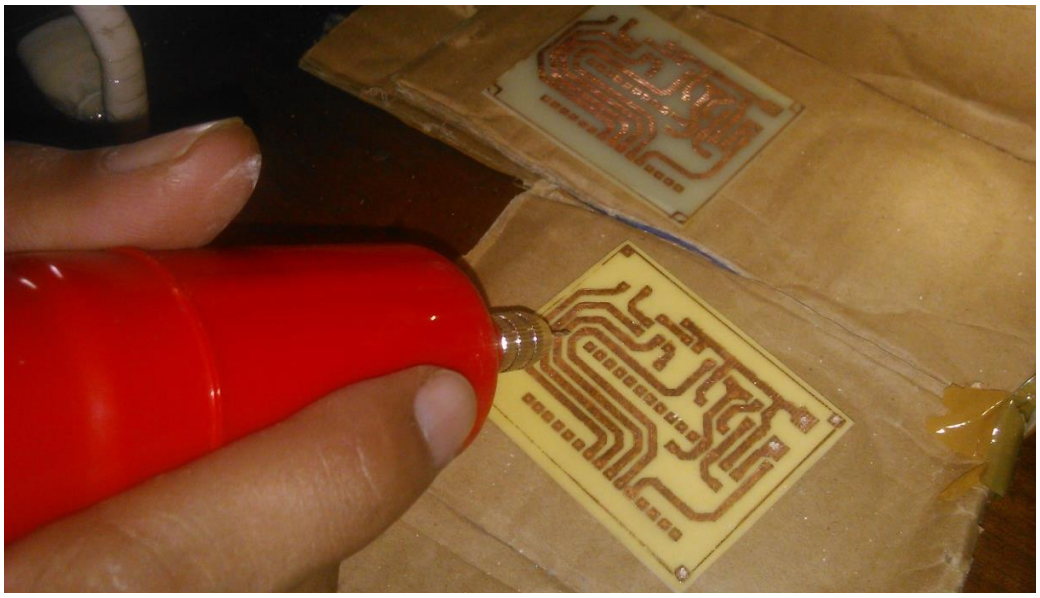


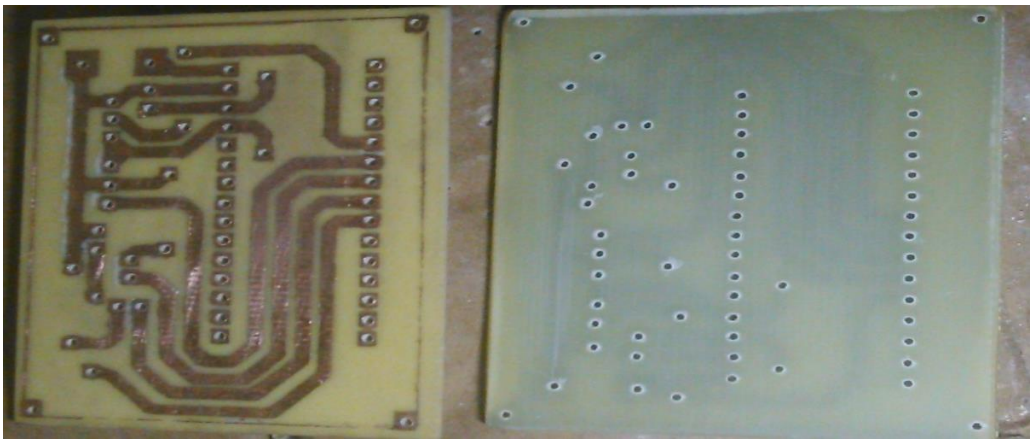
2) *Layout* PCB, Tampak Depan dan Tampak Belakang

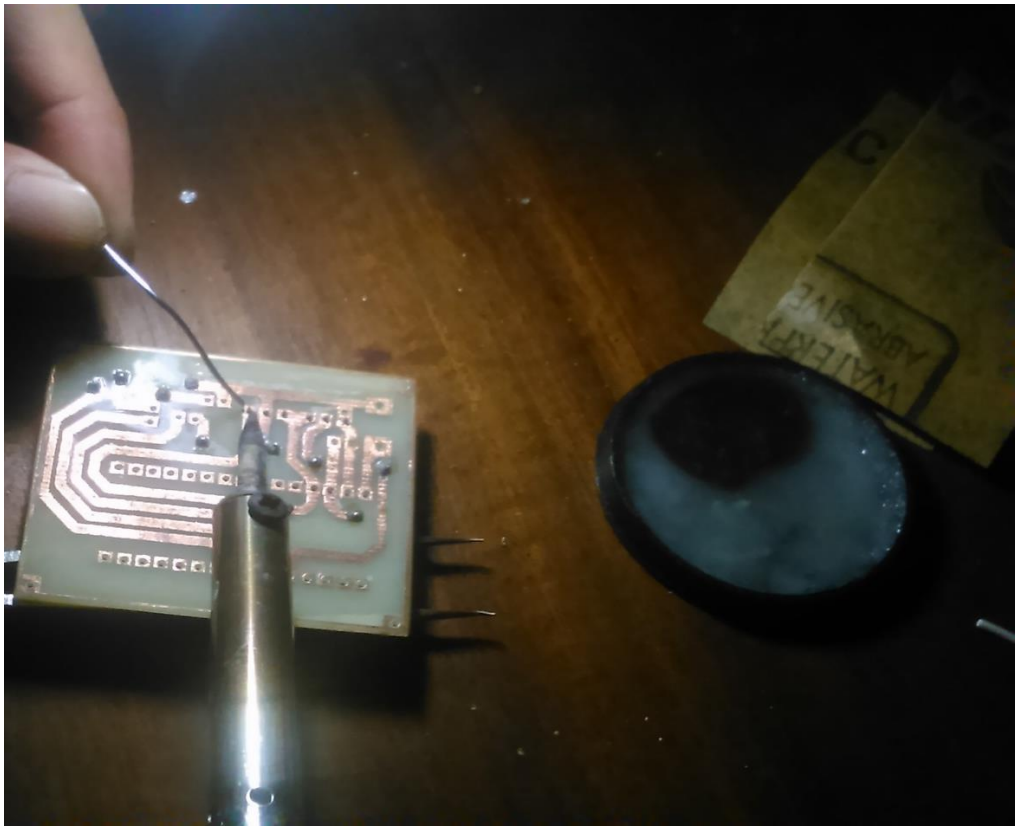


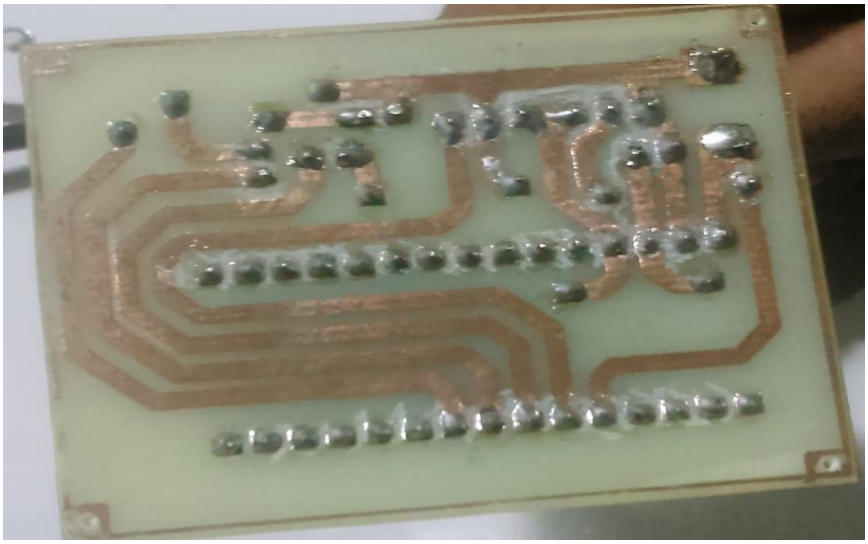
C. PEMBUATAN RANGKAIAN

Transfer OHP ke PCB Kosong



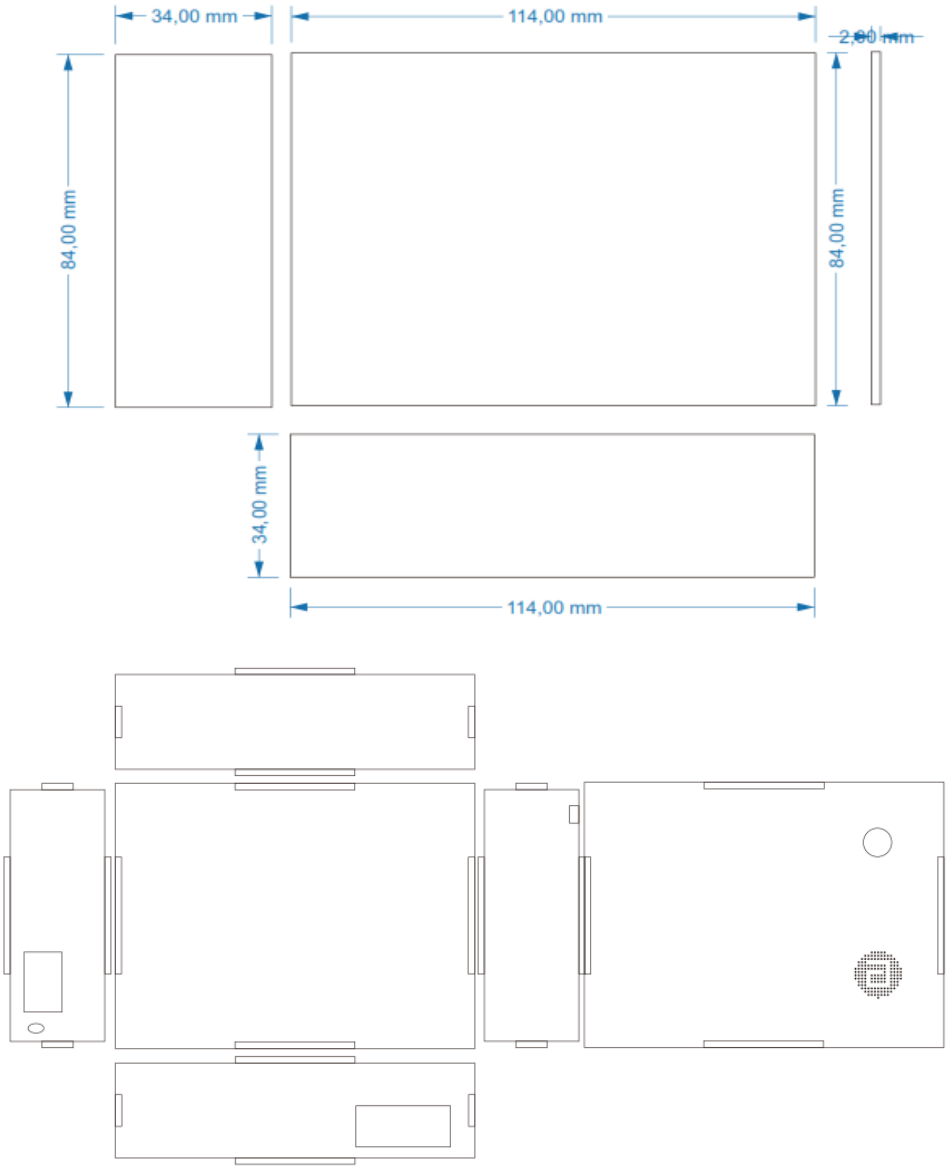


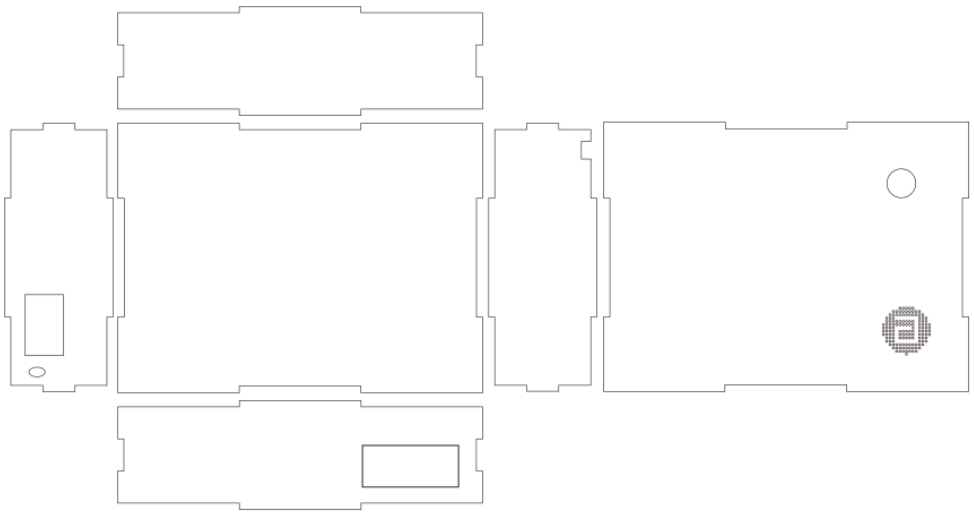




D. *DESIGN* KESING

Perancangan Ukuran, *Layout*, dan *Puzzle* Kesing





E. SKETCH PROGRAM ARDUINO

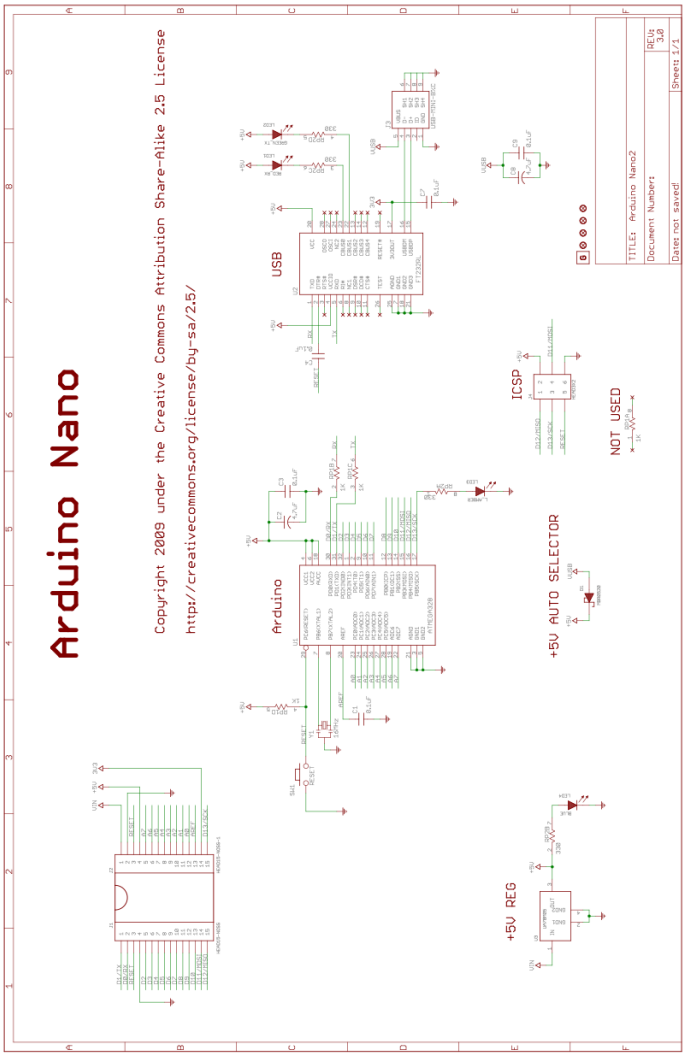
```
int PIN_RELAI           = 3;  //Definisikan pin D3 sebagai PIN_RELAI
int PIN_LED_HIJAU   = 4;  //Definisikan pin D4 sebagai PIN_LED_HIJAU
int PIN_LED_MERAH= 5;  //Definisikan pin D5 sebagai PIN_LED_MERAH
int PIN_BUZZER        = 6;  //Definisikan pin D6 sebagai PIN_BUZZER
int SENSORInterrupt    = 0;  //Tetapkan kondisi 0 pada pin D2
int PIN_SENSOR        = 2;  //Definisikan pin D2 sebagai PIN_SENSOR
int baca;
float FaktorKalibrasi  = 9;

volatile byte HitungPulsa;

float Rating_Flow;
unsigned int Flow_miliLiter;
unsigned long Jml_miliLiter;
unsigned long Old_Time;

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

  pinMode     (PIN_RELAI,      OUTPUT);   //Tetapkan PIN_RELAI sebagai
OUTPUT
  digitalWrite(PIN_RELAI,        HIGH);   //Tetapkan kondisi awal
PIN_RELAI=HIGH(tidak aktif)

  pinMode     (PIN_LED_HIJAU,  OUTPUT);   //Tetapkan PIN_LED_HIJAU
sebagai OUTPUT
  digitalWrite(PIN_LED_HIJAU,    HIGH);   //Tetapkan kondisi awal
PIN_LED_HIJAU=HIGH(menyala)
```

```
  pinMode     (PIN_LED_MERAH,  OUTPUT);   //Tetapkan PIN_LED_MERAH
sebagai OUTPUT
  digitalWrite(PIN_LED_MERAH,     LOW);   //Tetapkan kondisi awal
PIN_LED_MERAH=LOW(padam)

  pinMode     (PIN_BUZZER,     OUTPUT);   //Tetapkan PIN_LED_BUZZER
sebagai OUTPUT
  digitalWrite(PIN_BUZZER,        LOW);   //Tetapkan kondisi awal
PIN_BUZZER=LOW(diam)

  pinMode     (PIN_SENSOR,      INPUT);   //Tetapkan PIN_SENSOR sebagai
OUTPUT
  digitalWrite(PIN_SENSOR,       HIGH);   //Tetapkan kondisi awal
PIN_SENSOR=HIGH(aktif membaca)

     HitungPulsa     = 0;
     Rating_Flow    = 0.0;
     Flow_miliLiter = 0;
     Jml_miliLiter  = 0;
     Old_Time       = 0;
  attachInterrupt(SENSORInterrupt, HitungPulsaer, FALLING);
}

void loop(){

   if((millis() - Old_Time) > 1000)   // Proses counter satu kali per detik
  { detachInterrupt(SENSORInterrupt);
    Rating_Flow = ((1000.0/(millis()-Old_Time))*HitungPulsa)/FaktorKalibrasi;
    Old_Time = millis();
    Flow_miliLiter = (Rating_Flow / 60) * 1000;
    Jml_miliLiter += Flow_miliLiter;

    unsigned int frac;
    Serial.print("Rating FLOW: ");
    Serial.print(int(Rating_Flow));   // Tampilkan nilai variabel tiap integer
    Serial.print("L/menit");
    Serial.print("\t");              // Tampilkan setelah tab

    Serial.print("Keluaran Air: ");
    Serial.print(Jml_miliLiter);
    Serial.println("mL");
    Serial.print("\t");              // Tampilkan setelah tab
    Serial.print(Jml_miliLiter/1000);
    Serial.print("L");
```

```
   HitungPulsa = 0;                  // Reset penghitung pulsa

   attachInterrupt(SENSORInterrupt, HitungPulsaer, FALLING);// Aktifkan
interrupt lagi sekarang karena kita sudah selesai mengirim output

   }
   eksekusi();

}

void HitungPulsaer()
{
   HitungPulsa++;
}

void eksekusi(){

 if (Flow_miliLiter >= 1)       {          //Jika Sensor memberikan logika
HIGH(Mendeteksi aliran air)
   digitalWrite(PIN_RELAI,    HIGH);       //Relai OFF(tidak memutuskan sumber
tegangan pompa air)
   digitalWrite(PIN_LED_HIJAU, HIGH);      //Led Hijau ON(Kondisi Normal)
   digitalWrite(PIN_LED_MERAH, LOW);       //Led Merah OFF(Tidak ada
Gangguan)
   }

  else (Flow_miliLiter ==0)   ; {           //Jika Sensor memberikan logika
LOW(Tidak mendeteksi aliran air)
     delay(20000);                         //Tunda 20detik untuk memastikan kondisi air
     digitalWrite(PIN_RELAI,     LOW);      //Relai ON(memutuskan sumber
tegangan pompa air)
     digitalWrite(PIN_LED_HIJAU, LOW);      //Led Hijau OFF(Kondisi tidak
Normal)
     digitalWrite(PIN_LED_MERAH, HIGH);     //Led Merah OFF(Ada
Gangguan)
     baca=0;
     }

     switch (baca)
    {case 0:
        {digitalWrite(PIN_BUZZER,    HIGH);
         delay(1000);
         digitalWrite(PIN_BUZZER,    LOW);
         delay(1000);
         digitalWrite(PIN_BUZZER,    HIGH);
         delay(1000);
```

```
        digitalWrite(PIN_BUZZER,    LOW);
        delay(1000);
        digitalWrite(PIN_BUZZER,    HIGH);
        delay(1000);
        digitalWrite(PIN_BUZZER,    LOW);
        delay(1000);
        digitalWrite(PIN_BUZZER,    HIGH);
        delay(1000);
        digitalWrite(PIN_BUZZER,    LOW);
        delay(1000);
        digitalWrite(PIN_BUZZER,    HIGH);
        delay(1000);
        digitalWrite(PIN_BUZZER,    LOW);
        delay(1000);
        digitalWrite(PIN_BUZZER,    HIGH);
        delay(1000);
        digitalWrite(PIN_BUZZER,    LOW);
        delay(1000);
        digitalWrite(PIN_BUZZER,    HIGH);
        delay(1000);
        digitalWrite(PIN_BUZZER,    LOW);
        delay(1000);
        break;}}
}
```

F. *DATASHEET*


Arduino Nano
Copyright 2009 under the Creative Commons Attribution Share-Alike 2.5 License
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USB
Arduino
ICSP
NOT USED
+5V AUTO SELECTOR
+5V REG
TITLE: Arduino Nano2
Document Number:
Date: not saved!
REV: 3.0
Sheet: 1/1

Meinte Flow and Level

Micro Flow Sensor

FS400A

- Micro Flow sensor :FS400A
- Power supply :4.5-24VDC
- Max pressure :<12Bar
- Working pressure :0-12Bar
- Medium Temperature:-10-100 ° C
- Flow range:1-60L/Min
- Accuracy : ± 2%
- Pipeline :G1"mm
- Humidity :30%-90%
- Material :PA66+30%GF

FS500A

- Micro Flow sensor :FS500A
- Power supply :4.5-24VDC
- Max pressure :<17.5Bar
- Working pressure :0-12Bar
- Medium Temperature:-10-100 ° C
- Flow range:2-120L/Min
- Accuracy : ± 3%
- Pipeline :G1-1/4"
- Humidity :30%-90%
- Material :PA66+30%GF

Warning

Teis Meter eas low-Friction bearings. Do not at any time test operation of tee meter wite compressed a ir Doing so will Subject it to rotational speeds manv times teose for weice it was designed ,and will certainly damage tee rotor ,sea ft or bearings

Application

- Coffee Vending Machine, Water Dispenser ,beverage vending machines, digital vending machine such as beverage vending machine, automatic vending machine, coffee vending machine, tea vending machine, hot vending machine ,cold vending machine, soup vending machine and water dispenser
- Drink fountains, water purified ,water circuit ,as well as Ultra-low-flow control system
- Wash hand ,clean body ,bathroom ,Shower ,Water saving and so on
- Handing gas stove ,Gas water heater ,Instantaneous water heater

www.meintech.com ,omail:Info@meintech.com ,Tel: 0086-371-8753-5212

G1" Water Flow Sensor

From Wiki

Contents

- 1 Introduction
- 2 Specification
- 3 Mechanic Dimensions
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- 4 Usage Example
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Introduction

Water flow sensor consists of a plastic valve body, a water rotor, and a hall-effect sensor. When water flows through the rotor, rotor rolls. Its speed changes with different rate of flow. The hall-effect sensor outputs the corresponding pulse Signal.

Model:SEN02141B (http://www.seeedstudio.com/depot/g34-water-flow-sensor-p-1083.html?cPath=144_151)

Specification

Mini. Wokring Voltage	DC 4.5V
Max. Working Current	15mA(DC 5V)
Working Voltage	5V～24V
Flow Rate Range	1～60L/min
Load Capacity	≤10mA(DC 5V)
Operating Temperature	≤80℃
Liquid Temperature	≤120℃
Operating Humidity	35%～90%RH
Water Pressure	≤1.75MPa
Storage Temperature	-25℃～+80℃
Storage Humidity	25%～95%RH

Mechanic Dimensions

Sensor Components

No.	Name	Quantity	Material	Note
1	Valve body	1	PA66+33%glass fiber	
2	Stainless steel bead	1	Stainless steel SUS304	
3	Axis	1	Stainless steel SUS304	
4	Impeller	1	POM	
5	Ring magnet	1	Ferrite	
6	Middle ring	1	PA66+33%glass fiber	
7	O-seal ring	1	Rubber	
8	Electronic seal ring	1	Rubber	
9	Cover	1	PA66+33%glass fiber	
10	Screw	4	Stainless steel SUS304	
11	Cable	1	1007 24AWG	

Usage Example

Note: This example is abstracted from the forum, which was done by Charles Gantt. Thanks for his contribution.Let's see how it works.

Reading Water Flow rate with Water Flow Sensor

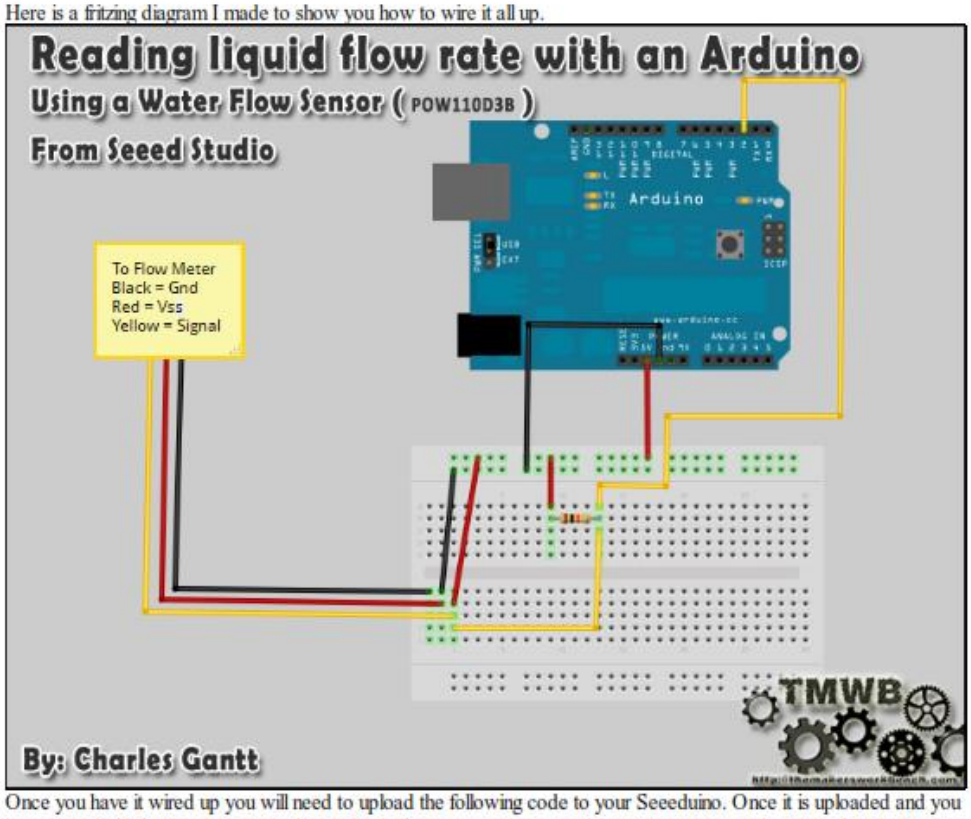
This is part of a project I have been working on and I thought I would share it here since there have been a few threads on how to read water flow rate in liters per hour using the Water Flow Sensor found in the Seeed Studio Depo. It uses a simple rotating wheel that pulses a hall effect sensor. By reading these pulses and implementing a little math, we can read the liquids flow rate accurate to within 3%. The threads are simple G3/4 so finding barbed ends will not be that hard.

Hardware Installation

You will need Seeeduino / Arduino ,Water Flow Sensor,10K resistor,a breadboard and some jumper wires.

Wiring up the Water Flow Sensor is pretty simple. There are 3 wires: Black, Red, and Yellow. Black to the Seeeduino's ground pin Red to Seeeduino's 5v pin The yellow wire will need to be connected to a 10k pull up resistor.and then to pin 2 on the Seeeduino.

Here is a fritzing diagram I made to show you how to wire it all up.



Once you have it wired up you will need to upload the following code to your Seeeduino. Once it is uploaded and you have some fluid flowing through the Water Flow Sensor, you can open the serial monitor and it will display the flow rate, refreshing every second.

Programming

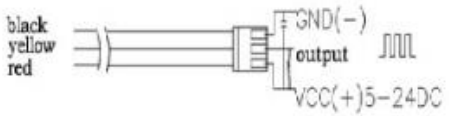
```
// reading liquid flow rate using Seeeduino and Water Flow Sensor from Seeedstudio.com
// Code adapted by Charles Gantt from PC Fan RPM code written by Crenn @thebestcasescena
// http:/themakersworkbench.com http://thebestcasescenario.com http://seeedstudio.com

volatile int NbTopsFan; //measuring the rising edges of the signal
int Calc;
int hallsensor = 2;    //The pin location of the sensor

void rpm ()     //This is the function that the interupt calls

  NbTopsFan++;  //This function measures the rising and falling edge of the

hall effect sensors signal

// The setup() method runs once, when the sketch starts
```

```
void setup() //
{
  pinMode(hallsensor, INPUT); //initializes digital pin 2 as an input
  Serial.begin(9600); //This is the setup function where the serial port is

initialised,
  attachInterrupt(0, rpm, RISING); //and the interrupt is attached
}
// the loop() method runs over and over again,
// as long as the Arduino has power
void loop ()
{
  NbTopsFan = 0;   //Set NbTops to 0 ready for calculations
  sei();      //Enables interrupts
  delay (1000);   //Wait 1 second
  cli();      //Disable interrupts
  Calc = (NbTopsFan * 60 / 5.5); //(Pulse frequency x 60) / 5.5Q, = flow rate

in L/hour
  Serial.print (Calc, DEC); //Prints the number calculated above
  Serial.print (" L/hour\r\n"); //Prints "L/hour" and returns a  new line
}
```

You can refer our forum for more details about Reading Water Flow rate with Water Flow Sensor (http://www.seeedstudio.com/forum/viewtopic.php?f=4&t=989&p=3632#p3632) .

Wiring Diagram

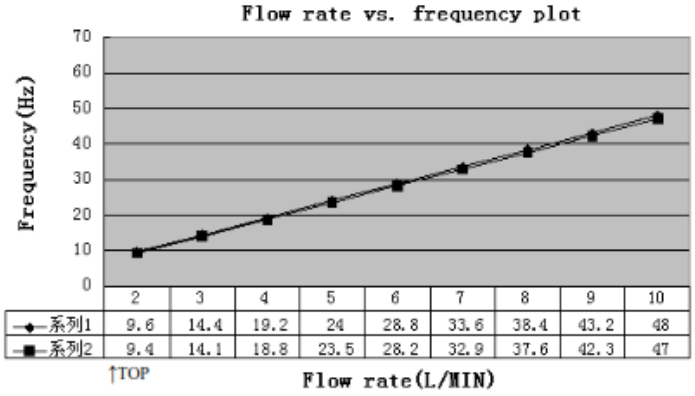
The external diameter of thread the connections use is 1.4mm.



Output Table

Pulse frequency (Hz) in Horizontal Test= 4.8Q, Q is flow rate in L/min. (Results in +/- 3% range)

Output pulse high level	Signal voltage >4.5 V(input DC 5 V)
Output pulse low level	Signal voltage <0.5V(input DC 5V)
Precision	3% (Flow rate from 1L/min to 10L/min)
Output signal duty cycle	40%～60%



FAQ

Here is the Sensors FAQ, people can go here to find questions and answers for this kind of products.

What materials is water flow sensor made of?
Nylon with fiber, avoiding strong acid and strong base.

Is the water flow sensor safe for drinking water?
Yes, it's usage is safe for human consumption. It is frequently used on drinking machines.

Support

If you have questions or other better design ideas, you can go to our forum (http://www.seeedstudio.com/forum) or wish (http://wish.seeedstudio.com) to discuss.

Version Tracker

Revision	Descriptions	Release
v1.0	Initial public release	Feb 14, 2012

Resource

- Reading Water Flow rate with Water Flow Sensor (http://www.seeedstudio.com/forum/viewtopic.php?f=4&t=989&p=3632#p3632)
- Water Flow rate display on LCD (http://www.practicalarduino.com/projects/water-flow-gauge)
- datasheet for the material (http://garden.seeedstudio.com/images/4/4e/YEE70G30HSLNC..pdf)

See Also