

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation

On This Occasion installing Arduino 1.8.10 was combined with both the DHT11 sensor and the Fire sensor , which was added with a 2x16 LCD screen and for storage media using a 4GB Micro SD that could be upgraded. For the library using 3 libraries namely micro sd library, dht.h library and liquid crystal i2c library , for fire sensor do not use any library only input on A0.

```
1.#include <SPI.h>
2.#include <SD.h>
3.#include <dht.h>
4.#include <LiquidCrystal_I2C.h>
5.int analogPin = A0;
6.int analogVal;
7.dht DHT;
8.LiquidCrystal_I2C lcd(0x27,16,2);
9.#define DHT11_PIN 2
```

From number 1 to number 6 is the code to declare the initial variable for use in the main program.

```
10.void setup() {
11.Serial.begin(9600);
12.while (!Serial) {
13.;}
14.(SD.begin(Chipselect))
15.lcd.init()
```

In number 10-13 is for opening serial communication for ports and in numbers 14-15 for card reader initiation and also in void setup lcd.

```
16. void loop(){
17.for (int pinanalog = 0; pinanalog < 1; pinanalog++)
18.analog read = analogval(pinanalog):
19.file open (“filename.csv” file_write)
```

For section 16 to run repetitive programs, at number 17 it is correct to read the dht11 sensor and add it to the string. In section 18 to run the Flamesensor program and for the 18th number to create a CSV file which is then used to save the file.

```
20.filesaya.print(dht.temperatur);
21.filesaya.print(dht.kelembahan);
22.filesaya.print(valanalog);
```

In number 20-22 is a part to record he results of the sensor and input it into CSV file which will later be read via micro SD.

```
23.lcd.print(kelambapan);
24.lcd.print(suhu);
25.if
26.serialprint(“jika salah membuka file);
```

At number 23 and 24 is part to display dht11 sensor to lcd to see the program can run properly and correctly or not. When all is going well in sections 25 and 26 is the part to cancel opening the CSV file when one of the sensors is not working properly.

5.2 Testing

In most people may use the results of the data to be read in realtime using website that can be accessed via the internet, but in contrast to this program that uses LCD and Micro SD as a astorage mediu that can later be used continuously and can be checked directly see data that goes to the storage section. As for the problems that occur when using a network such as signal interference that can occur when the network is unstable and can prevent it from accessing data in real-time into its deficiency value of the storage. With micro sd this is a way to implement a different system and be an alternative to the fire detection system. With micro SD storage memory can be upgraded as needed.

