

Progress till date

ENERGEX

IOT PROJECT

1ST REVIEW

POWER MONITORING AND
MANAGEMENT SYSTEM

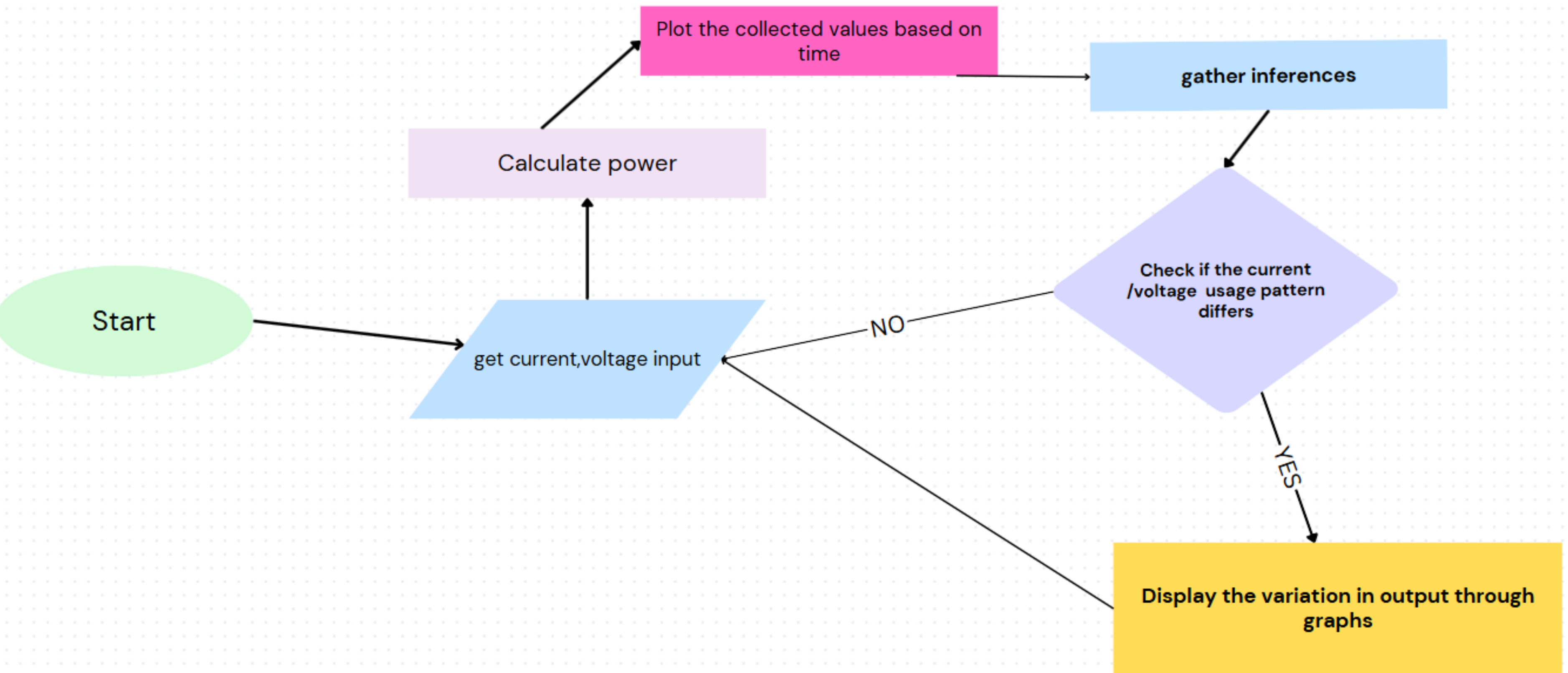
/ Biancaa.R

WHAT IS IT?

1. Metering and monitoring are two related but distinct concepts in power monitoring. Metering refers to the measurement of electrical parameters such as voltage, current, power, and energy consumption.
2. A power meter is used for metering and typically provides a readout of the measured parameters.
3. Monitoring, on the other hand, refers to the continuous collection and analysis of data as it flows to each device in the facility, then provides reporting tools to analyze and share energy use trends.

DELIVERABLE FUNCTIONALITY:

1. Signalling if the temperature crosses a certain threshold
2. current and voltage sensors are connected for metering
3. calculation of power
4. setting up of an internal clock for calculation of time
5. Using of the clock to monitor variations in power monitoring .
6. Comparison for the general trend. --> Either higher or lower (by howmuch)
7. setting of comparing logic/ Basic ml algorithm on edge
8. Displaying of recorded values and the inferences.
9. Calculation of Tarif / Amount payable
10. Alerts based on the usage / warnings about current flow.



workspace_1.16.0 - power_monitor/Core/Src/main.c - STM32CubeIDE

File Edit Source Refactor Navigate Search Project Run Window Help Hello Biancaa

STM32G431KBTX_FLASH.Id

AdaptiveNotchFilter.launch

main.c ×

main.c

stm32f3xx_hal_msp.c

startup_stm32f302r8tx.s

system_stm32f3xx.c

102 HAL_ADC_Start(&hadc1);

103 /* USER CODE END 2 */

104

105 /* Infinite loop */

106 /* USER CODE BEGIN WHILE */

107 /* USER CODE BEGIN WHILE */

108 uint8_t buf[120];

109 char buf1[MAX];

110 char buf2[MAX];

111 while (1)

112 {

113 //the two resistors as voltage dividers

114 //7.5 k and 30k

115 HAL_ADC_PollForConversion(&hadc1,1000);

116 readValue = HAL_ADC_GetValue(&hadc1);

117 rawVoltage = (float) readValue * 3.3 * 2 / 4095;

118 // If rawVoltage is not 2.5Volt, multiply by a factor.In my case it is 1.035

119 // This is due to tolerance in voltage divider resister & ADC accuracy

120 current =(rawVoltage - 2.5)/sensitivity;

121 HAL_Delay (100);

122 strcpy((char*)buf,"Hello darling");

123 HAL_Delay(400);

124 gcvf(rawVoltage, 6, buf1);

125 gcvf(current,6,buf2);

126 sprintf(buf, "voltage : %s current %s \n",buf1,buf2);

127 // Print data (you can use printf if your UART is configured)

128 HAL_Delay(1000);

129 // Convert data to strings and format them

130

131 // Transmit the formatted string over UART

132 HAL_UART_Transmit(&huart2, (uint8_t *)buf, strlen(buf), HAL_MAX_DELAY);

133

Outline

Build Targets

> IDE activity

> IDE AdaptiveNotchFilter

> IDE Core

> IDE Inc

> IDE Src

> IDE Startup

> IDE Drivers

> IDE CMSIS

> IDE STM32G4xx_HAL_Driver

> IDE Inc

> IDE Src

> IDE .settings

> IDE drivers_baremetal

> IDE hello

> IDE .settings

> IDE hello1

> IDE led_blink

> IDE nucleo_blink2

> IDE pocket_os_rtos

> IDE positions

> IDE Core

> IDE Drivers

> IDE .settings

> IDE Debug

> IDE power_monitor

> IDE sensor_int

Problems

Tasks

Console ×

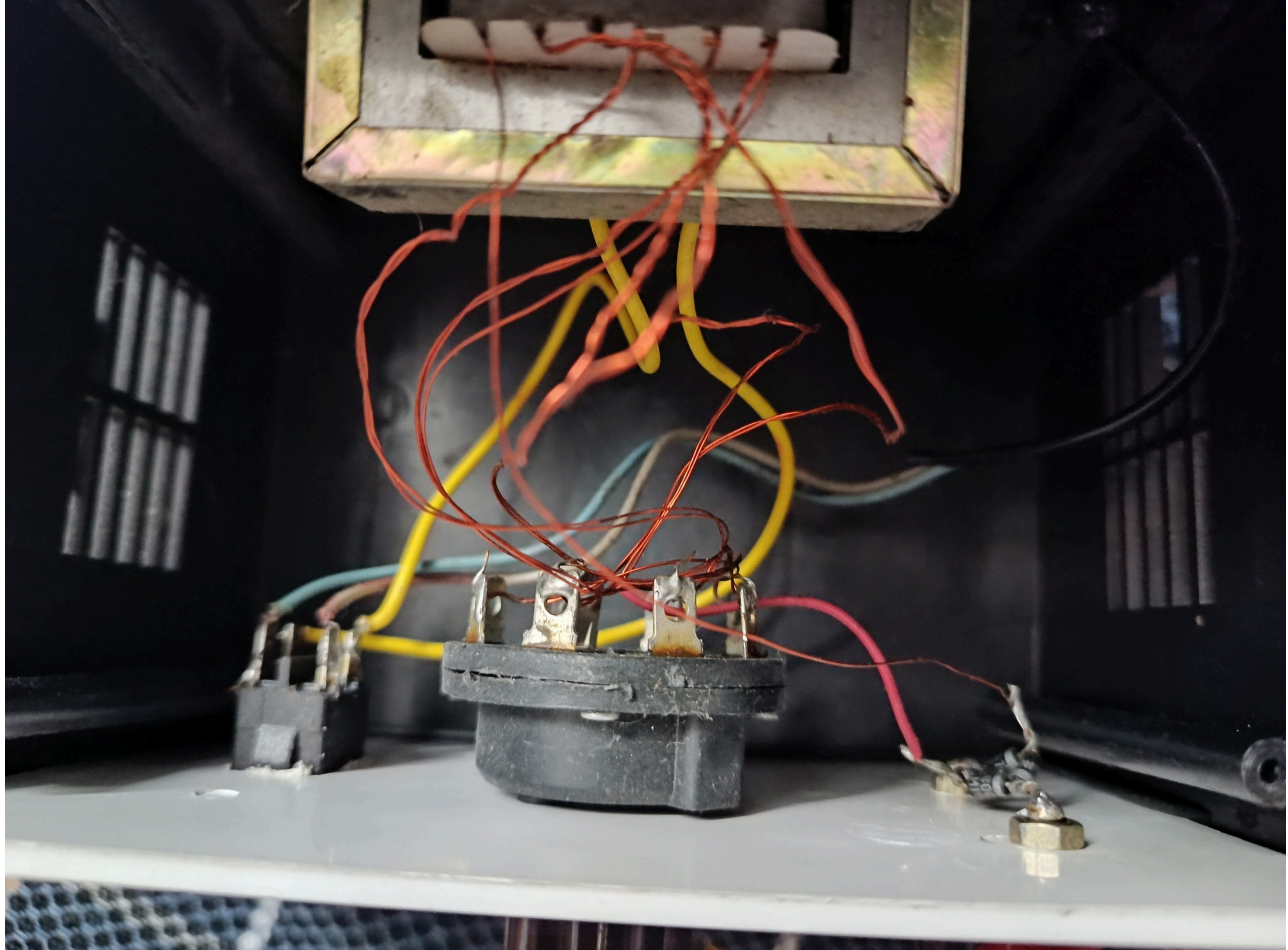
Properties

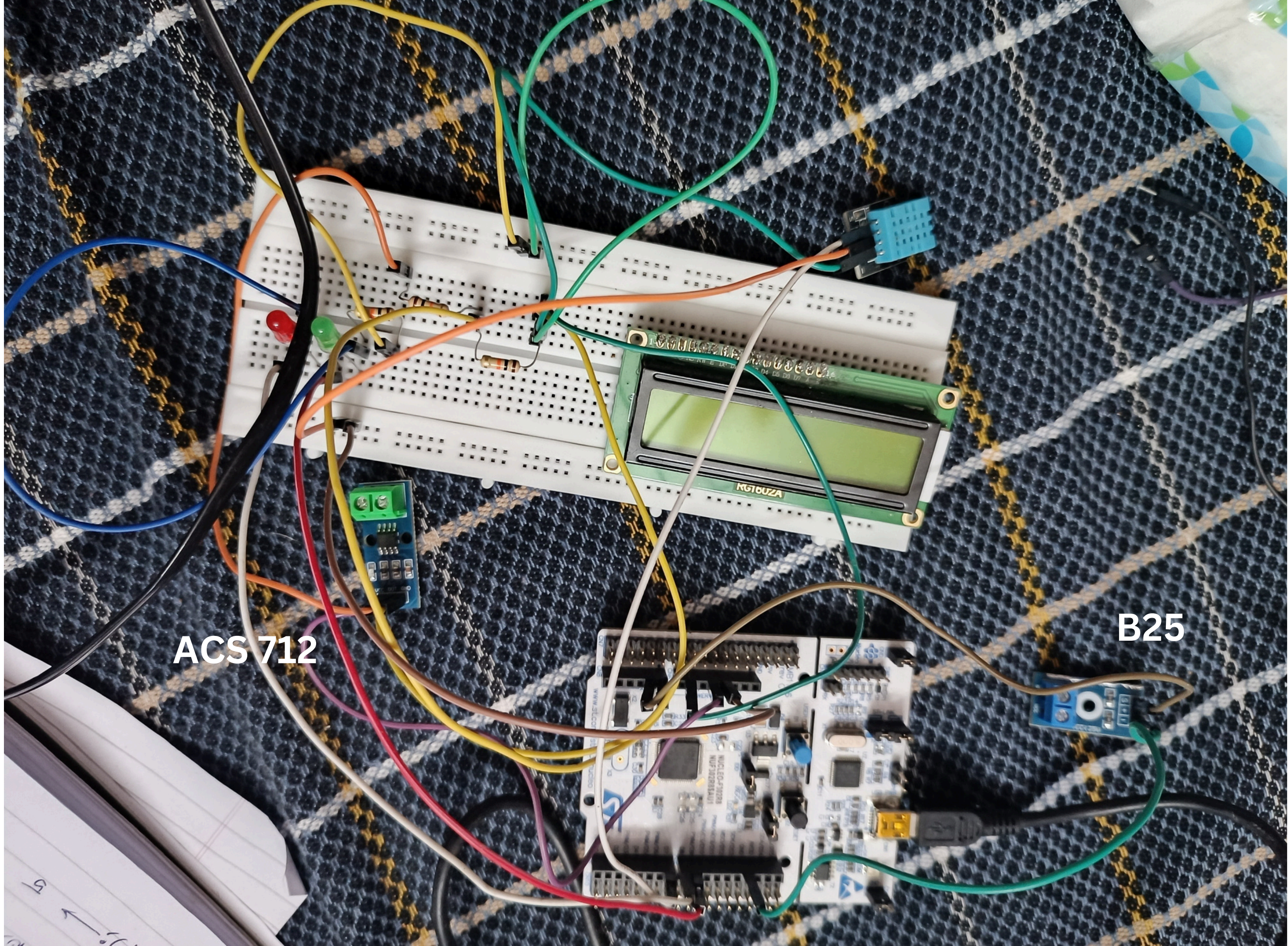
No consoles to display at this time.

Writable

Smart Insert

58 : 32 : 1851





ACS 712

B25

ISSUES:

1. Difficulty in setting up MQTT client in STM32
2. Lack of appropriate datasets --> have to setup our own dataset.

REFERENCES:

1.Devadhanishini et al., "Smart Power Monitoring Using IoT," find that energy consumption is a very important and challenging issue. An automatic electrical energy meter is used in large electric energy distribution systems. The integration of Arduino WIFI and SMS provides the system with a smart power monitoring system. A smart energy meter provides data for optimization and reduces power consumption

2. Research and development of power monitoring system:

The fixed 3-phase data logger is located beside the main grid meter (PLN meter) and the system is successfully recording data and clouds them into the IoT platform. The electrical circuit physical forms of both fixed and portable 3-phase data loggers are shown on the figure 9. The fixed 3-phase data logger is connected beside the PLN meter and the clamp sensors are calibrated against a commercial clamp meter