

SMART LEVEL INDICATOR (SMALIN)

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ABSTRACT

Smart Level Indicator (SMALIN) is designed to measure liquid substance level in tank accurately. SMALIN used PIC18F4550 to operate and control the process. The ultrasonic sensor is used to detect the level of liquid substance and enable the opening and closing the valve status of the liquid will be displayed by interfacing using Visual Basic.

Keywords: Smart Level Indicator (SMALIN), liquid substance level, ultrasonic sensor

1. INTRODUCTION

Nowadays engineering find it difficult to measure the depth of liquid and they are not sure of its level in the tank. Therefore, SMALIN is design to enable them to measure the liquid level in the tank. SMALIN is also able to control the opening of the liquid flow valve automatically. Furthermore, the advantage of SMALIN is that able to display the liquid level reading on PC screen. This was developed using Visual Basic Language application.

2. LITERATURE REVIEW

The main component which used in this project is ultrasonic sensor - its functions to measure the distance with its accuracy and sending ultrasonic waves at frequency of 40 kHz to microprocessor PIC. The second component is PIC18F4550 that functions as a brain of the project to control all the output devices and received the input signals from the ultrasonic sensor. Then it processes the signal to provide a feedback signal to control the output devices such as a relay (switch) that operates when it gets electrical signals and is an electromagnetic component consisting of two parts such as coil and mechanical switch.

3. METHODOLOGY

SMALIN is developed in two phases. The first stage is the project planning starting from August to November 2017. The second stage involves the construction of the project from January to March 2018. Gantt chart as table 1 shows the activity that has been implemented.

Table 1: Gantt chart of project

BIL	AKTIVITI	MINGGU PENGAJIAN																	
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18
1	PENDAFTARAN	■					■							■					
2	TAKLIMAT KURSUS		■																
3	MENYAMBUNG PROJEK 1			■	■	■													
4	MEMBUAT KAJIAN				■	■													
5	INSTALL PROTEUS DAN MPLAB BARU					■													
6	ANGGARAN KUANTITI DAN KOS						■												
7	SURVEY BAHAN							■											
8	MEMBUAT PROGRAM								■	■									
9	KEMAS KINI PROJEK									■	■								
10	TEST PROJEK										■	■							
12	KEMAS KINI PROJEK											■	■						
13	MEMBUAT PROPOSAL													■	■	■	■	■	
14	MEMBUAT POSTER														■	■	■	■	■
15	MENGHANTAR PROPOSAL																		■
16	MENGHANTAR BUKU LOG																		■
17	PRESENTATION PROJEK																		■

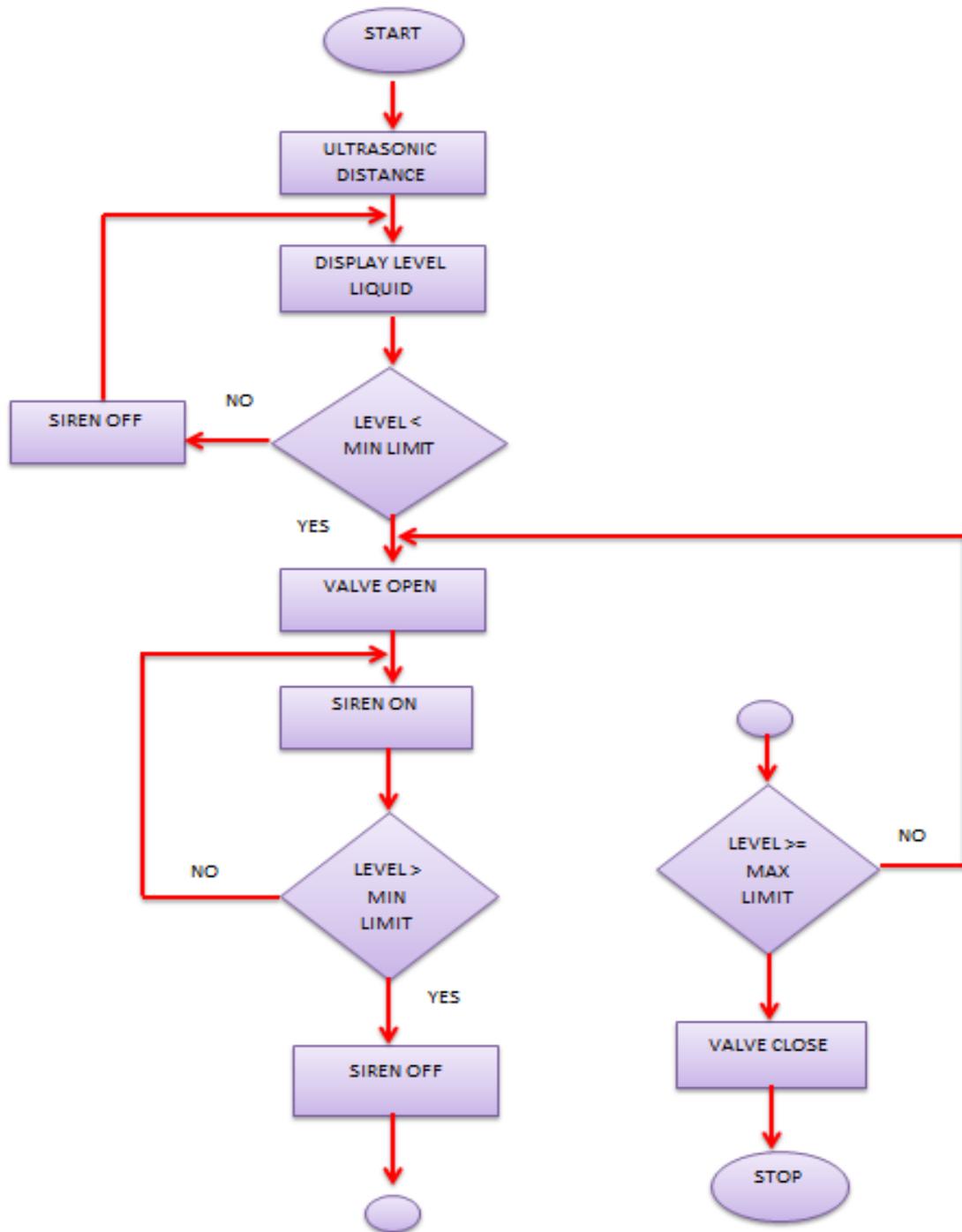


Figure 1: Flowchart of SMALIN

4. RESULTS AND DISCUSSIONS

This project works successfully which able to measure the liquid level in the tank and able to control the opening of the valve automatically. However, this project failed to display the liquid level reading on PC screen using software Visual Basic

5. CONCLUSIONS

As a conclusion, in developing this project, we learned more about the important of teamwork, leadership and cooperation to complete the task given. This project “SMART LEVEL INDICATOR (SMALIN)” has some advantages such as measuring the height of the liquid material in the tank, controlling the opening and closing of the valve and displaying the height status of the liquid. In future, SMALIN can be designed to be mobile and portable. Therefore, technician or engineer can easily setup the equipment to perform the measurement upon request.

REFERENCES

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