FAKULTI TEKNOLOGI DAN KEJURUTERAANELEKTRONIK DAN KOMPUTER
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FLEXIBLE MANUFACTURING SYSTEM I

BERL 1135	SEMESTER 1	SESI 2023/2024

PROJECT BERL1135 FMS1 SEM1 SESSION 2023/2024

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COURSE / SECTION	**1 BERL**	
DATE	**18 / 01 / 2024**	
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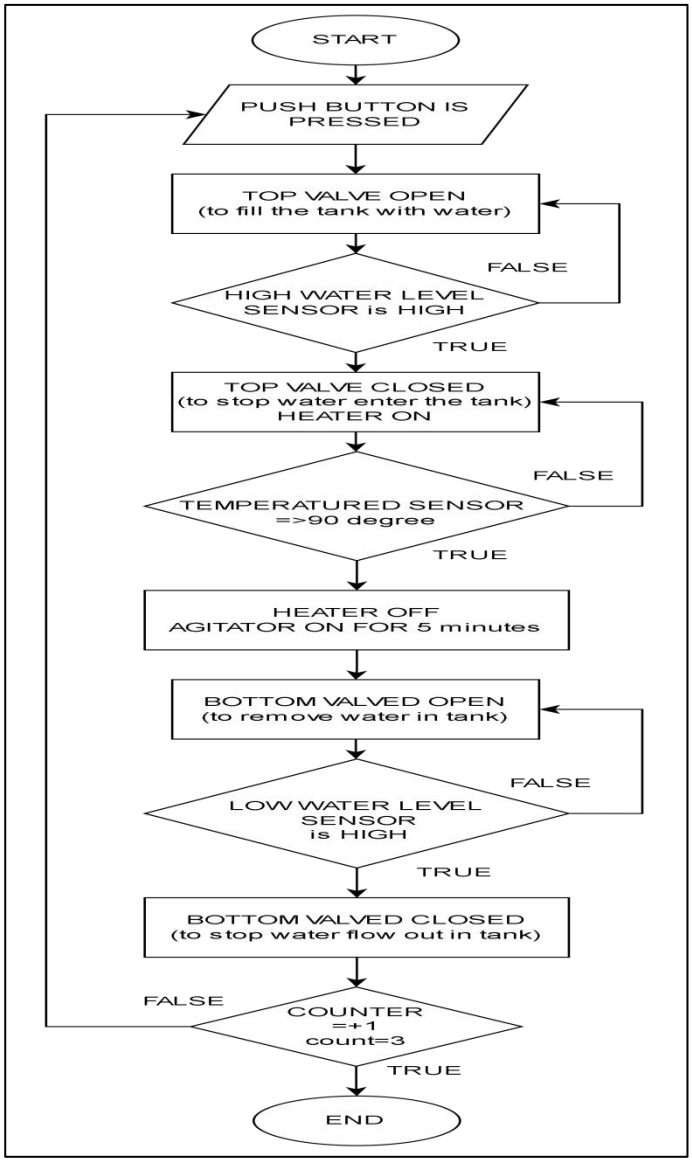
EXAMINER'S COMMENT	**VERIFICATION STAMP**
	TOTAL MARKS

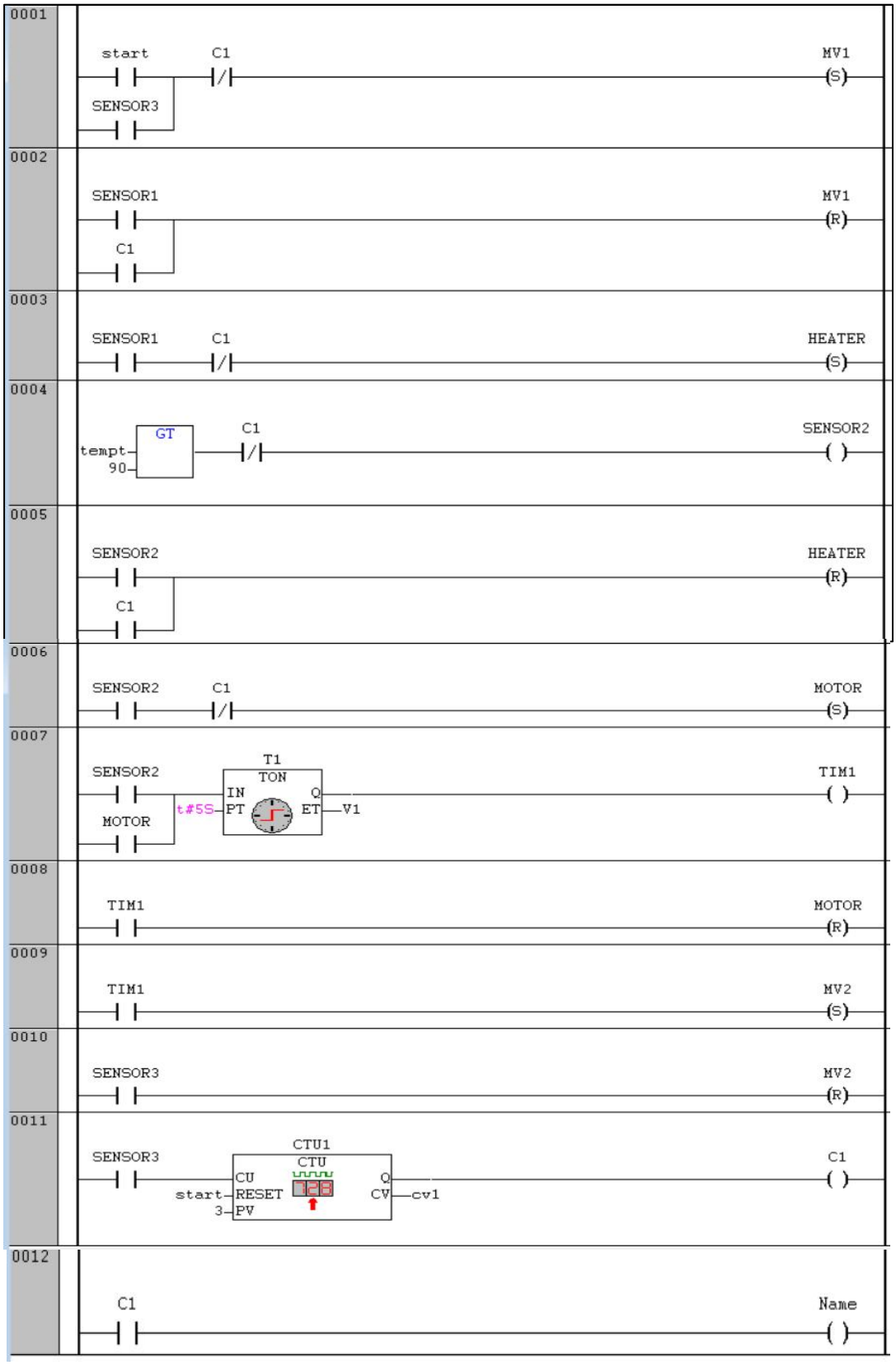
1.0 INTRODUCTION

This project is to explain the control functions of sensors, timers, counters, inputs, and outputs in Codesys v2.3 in order to form a complete system capable of carrying out a task automatically and simplifying human work. This automatic water tank project was specially design using **Ladder diagram** as a programming language and visualization as a visual system functionality in Codesys v2.3.

2.0 FLOW CHART FOR PROJECT SYSTEM



3.0 PLC PROGRAMMING LANGUAGE (LD) FOR SYSTEM



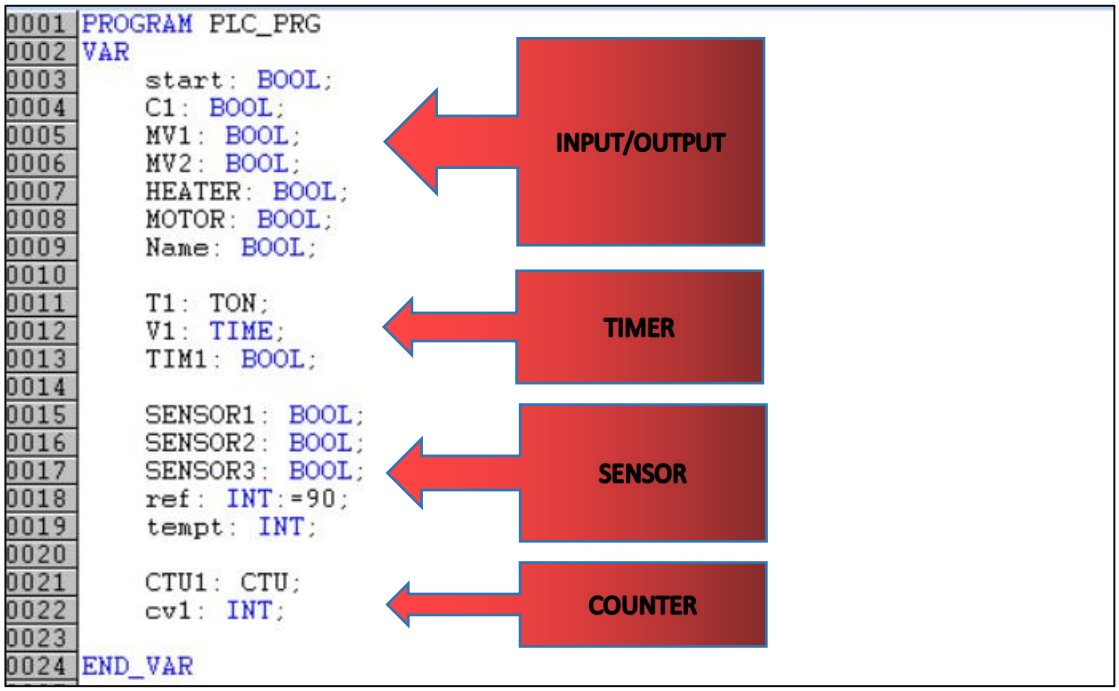


Figure3.1: Variable Progam PLC

4.0 VISUALIZATION

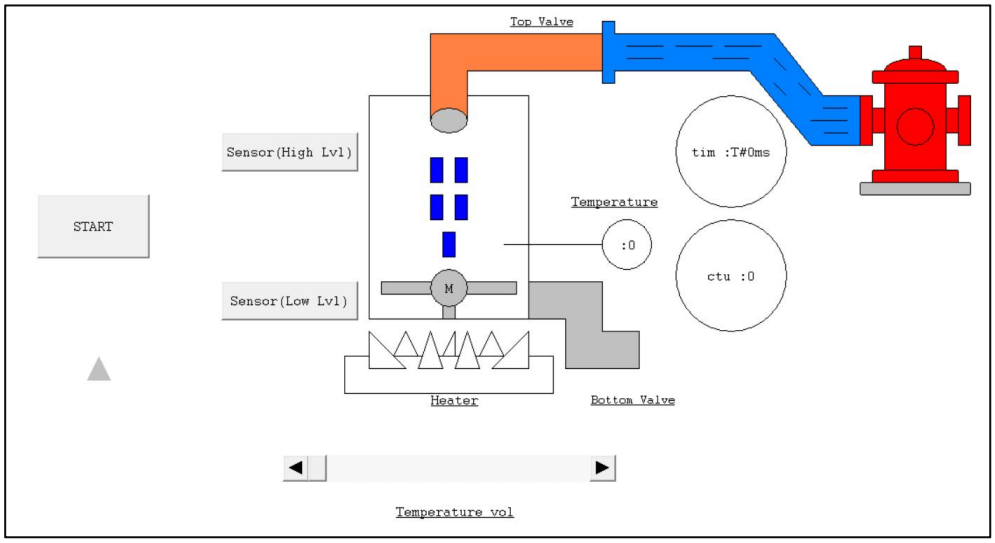


Figure 4.1: Start button is pressed

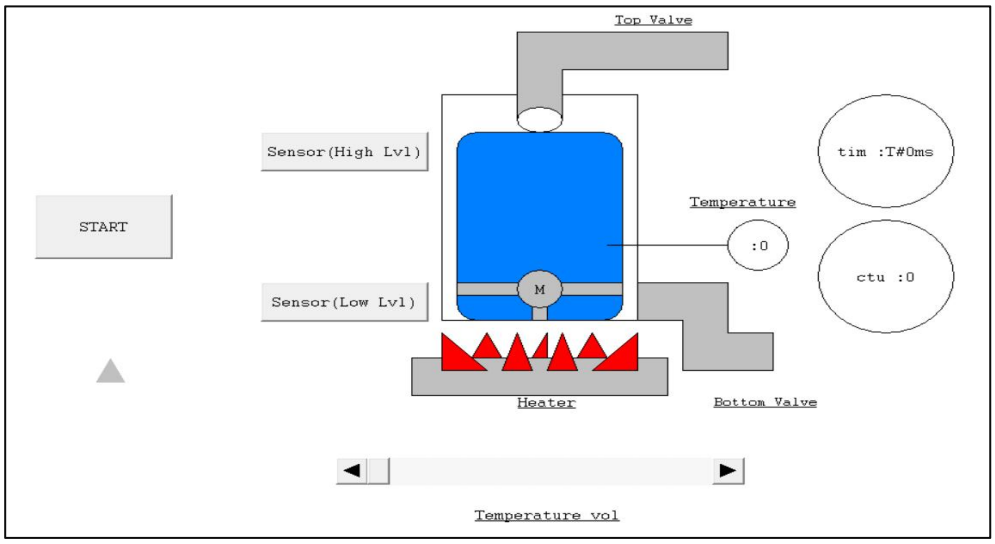


Figure 4.2: Sensor High Water Level in High condition

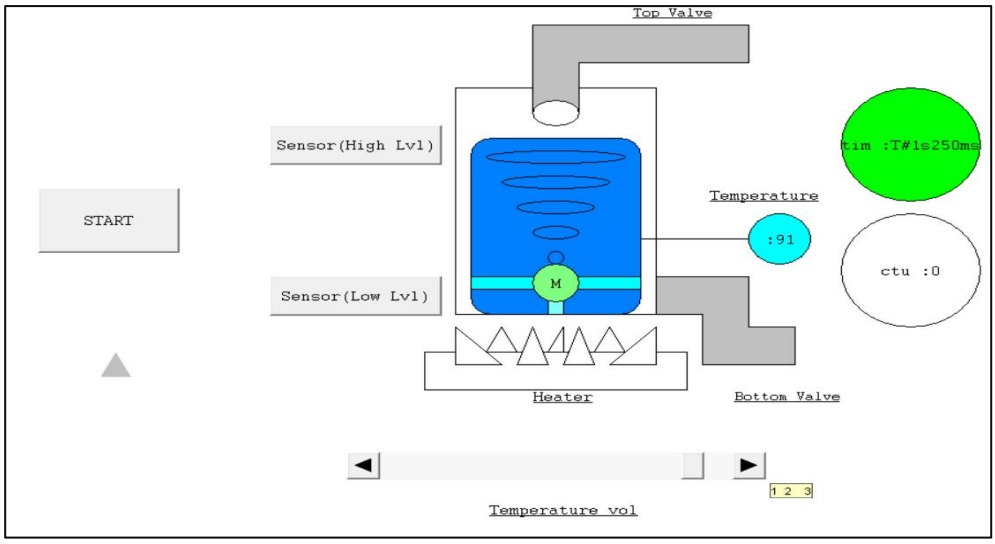


Figure 4.3: Temperature Sensor 90℃

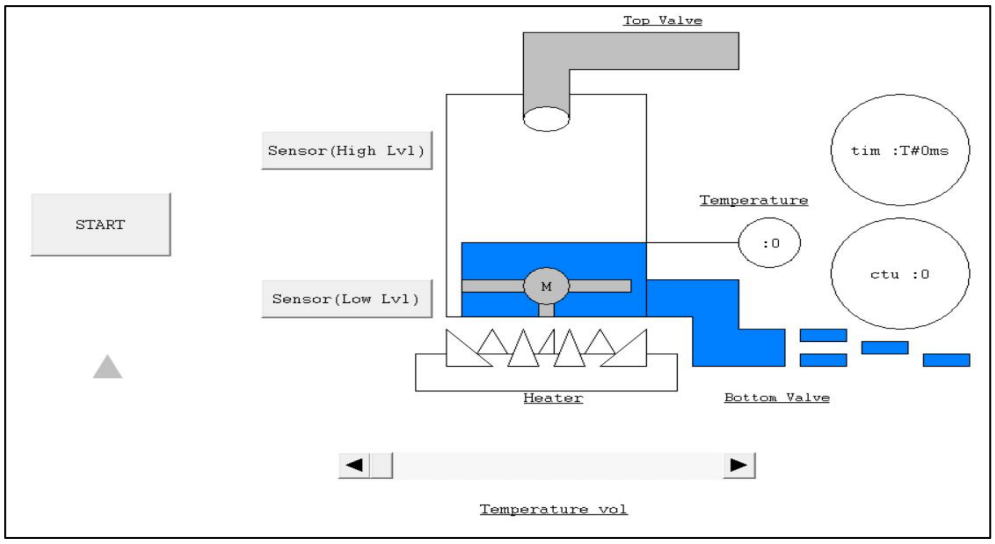


Figure 4.4: Bottom Valve Open After Motor run for 5 minutes using Timer

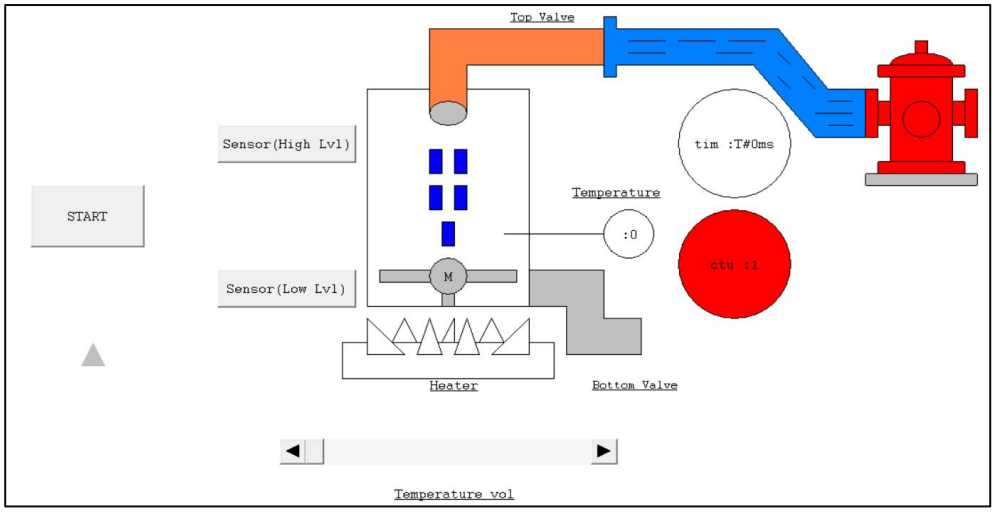


Figure 4.5: Sensor Low Water Level in High condition

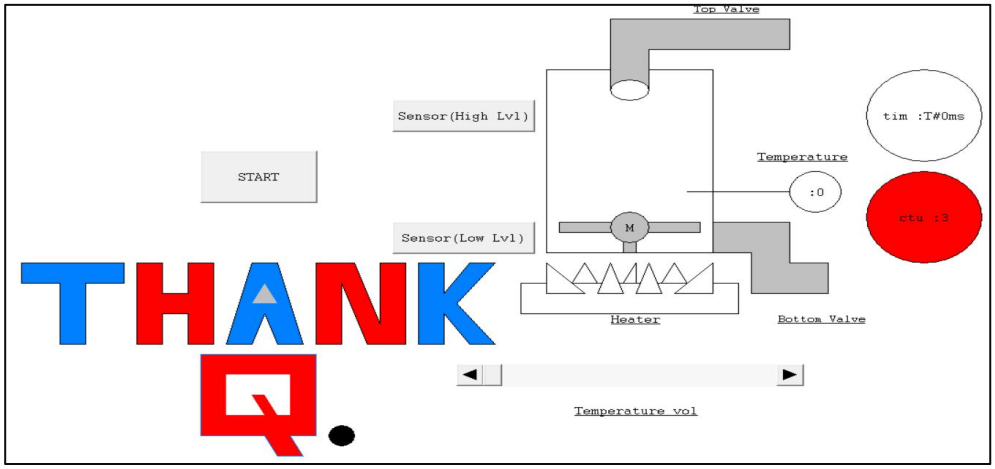


Figure 4.6: The system stop after 3 Cycle and need a new signal

5.0 DISCUSSION

This system using 2 push button, for START and RESET button, 3 sensor, for detect high water level, low water level and temperatures sensor, motor and also counter and timer.

When START button is pressed, top valve will open and water flows into the tank. When the High Water Level sensor detect tank water reaches a high level, top valve will closed and heater will on for heat up tank water.

When temperatures sensor detect tank water reaches 90℃ and above, heater will turn off and agitator will on to stir the tank water for 5 minutes.After 5 minutes end, agitator turn off and bottom valve will open to remove the water from the tank.

When the Low Water Level sensor detect tank water reaches a Low level, bottom valve will closed to prevent water from coming out of the tank and top valve will open automatically and water flows into the tank. Counter will start counting by 1 every time bottom valve will open to remove the water from the tank indicating 1 complete cycle has been executed.

When counter count to 3 its mean, the entire operations has been repeated 3 times and the program await a new signal to start.

6.0 CONCLUSION

In this project I learn more featured in Codes V2.3 and we can create and design a complete automatic water tank system using combine language of LD and FBD in Codes. I also skilled in control timer and counter for a system.