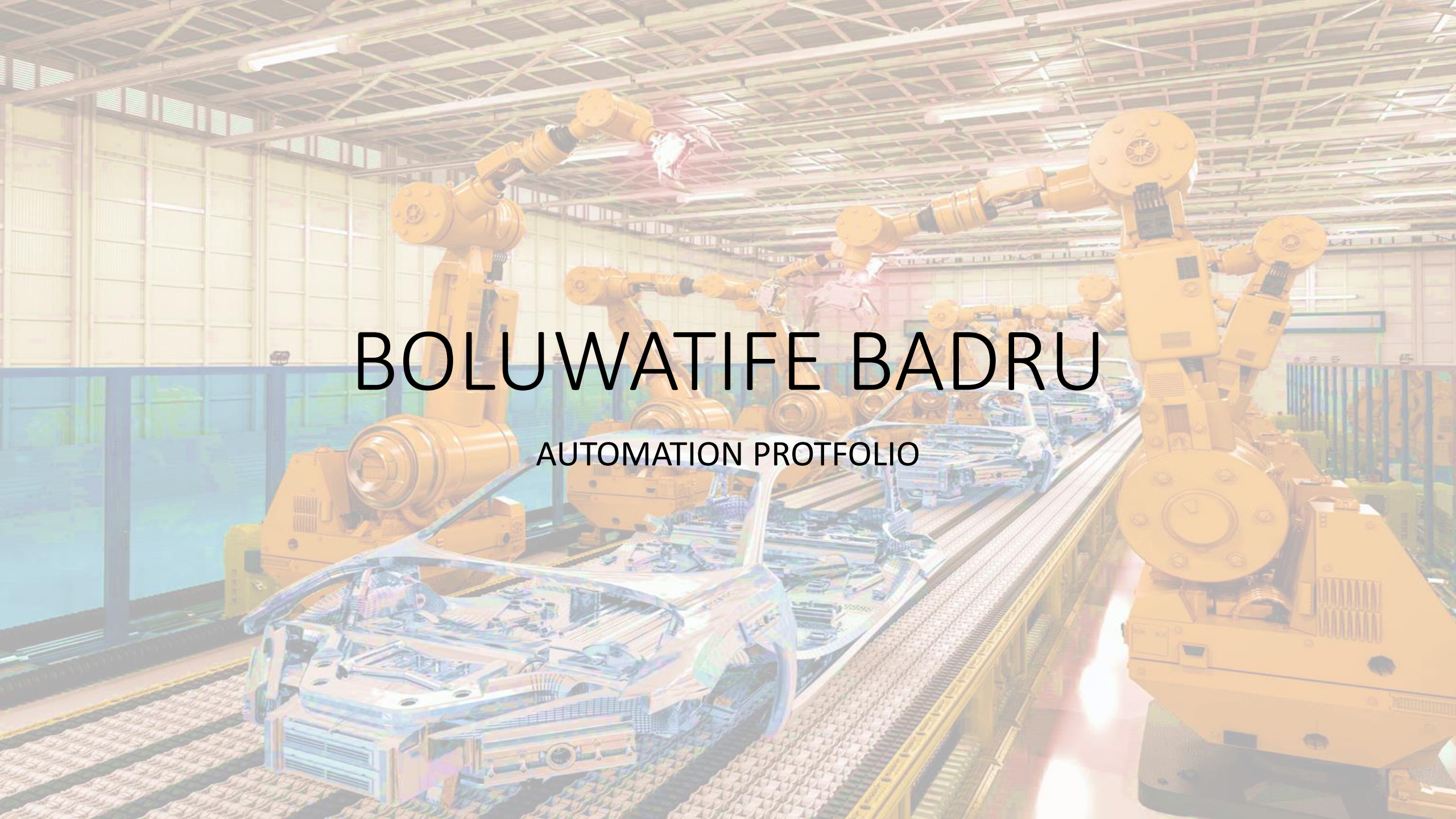


BOLUWATIFE BADRU

AUTOMATION PROTFOLIO

TABLE OF CONTENT

About Me

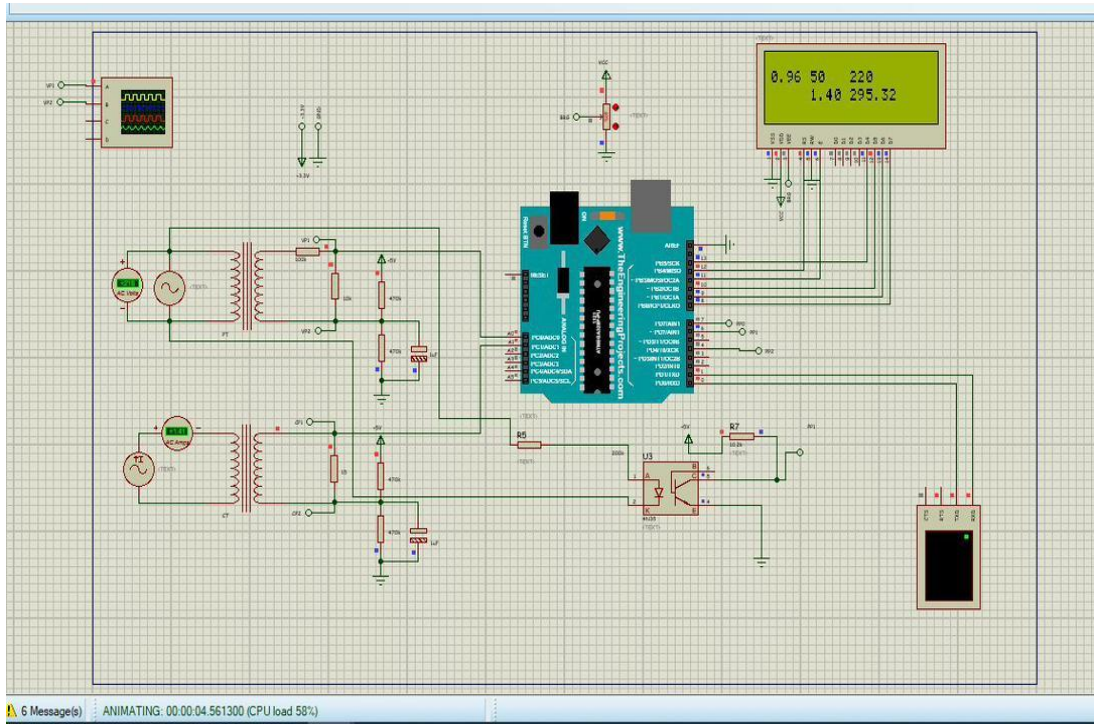
- I am Boluwatife Badru, an Industrial Automation Engineer that has completed multiple projects in his two years as an Automation professional. My expertise lies in the intricate world of PLC programming and SCADA/HMI development, where I revel in crafting code that breathes life into machines.
- For me, automation isn't just lines of code and flashing lights; it's a catalyst for progress. It's about pushing the boundaries of what's possible, streamlining operations, and unlocking the true potential of industrial landscapes. Each project is a puzzle, waiting to be cracked with the perfect blend of precision and ingenuity.

Key Achievements: Highlighted Projects.

- Power quality measurement meter
- Incomplete carton rejection system
- Integration of a Mercury 2+ HMI to HIMA H51q
- Meteorological system upgrade of an FPSO
- Automation of Water treatment Plant

Power quality measurement meter

- The power quality measurement measures the current harmonics distortion, voltage harmonics distortion, current, voltage, power factor and frequency.



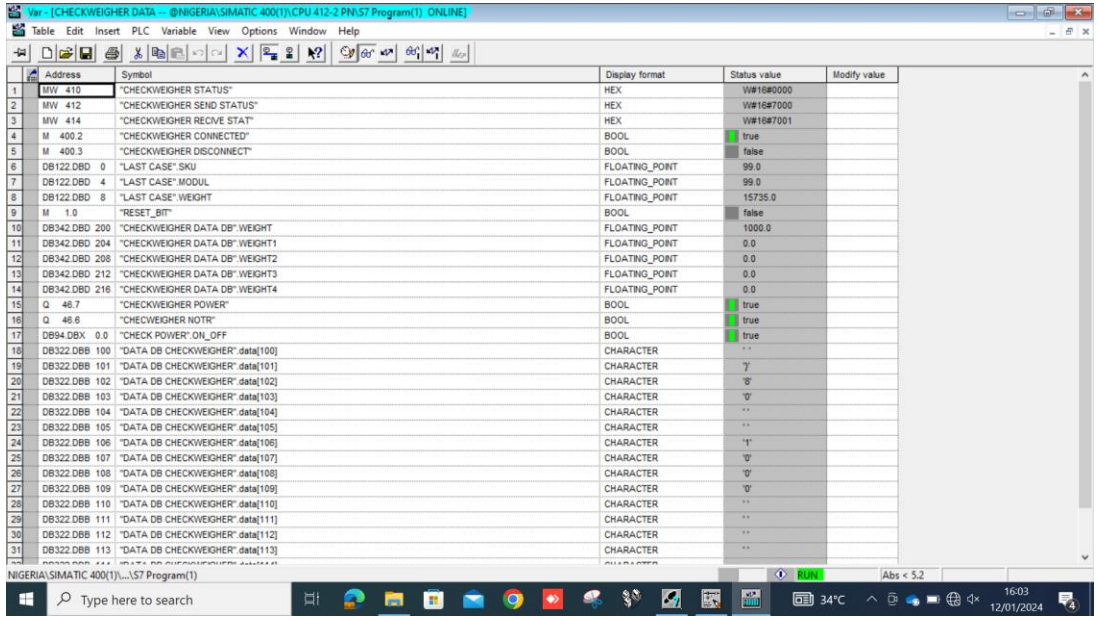
Power quality measurement meter

- This project combines the use of a microprocessor (Arduino), an AC power supply unit, passive elements (resistors, capacitors, inductors), operational amplifiers, and 16x2 LCD.

- For the calculation of harmonics distortion(current and voltage), Fast Fourier transform and other signal processing techniques was implemented on the Arduino.

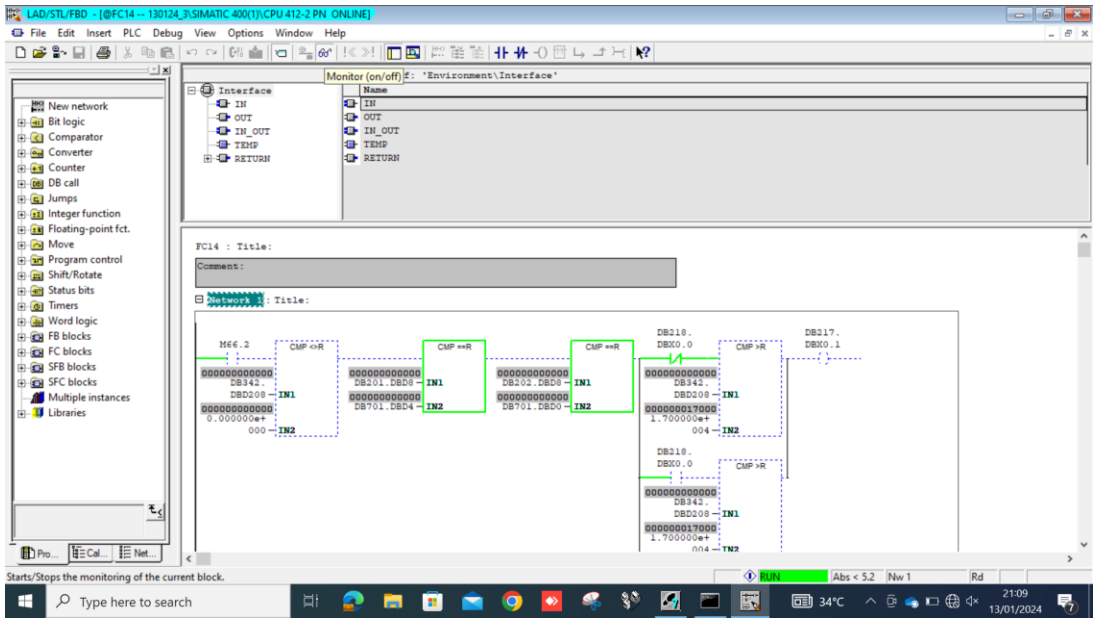
Incomplete carton rejection system

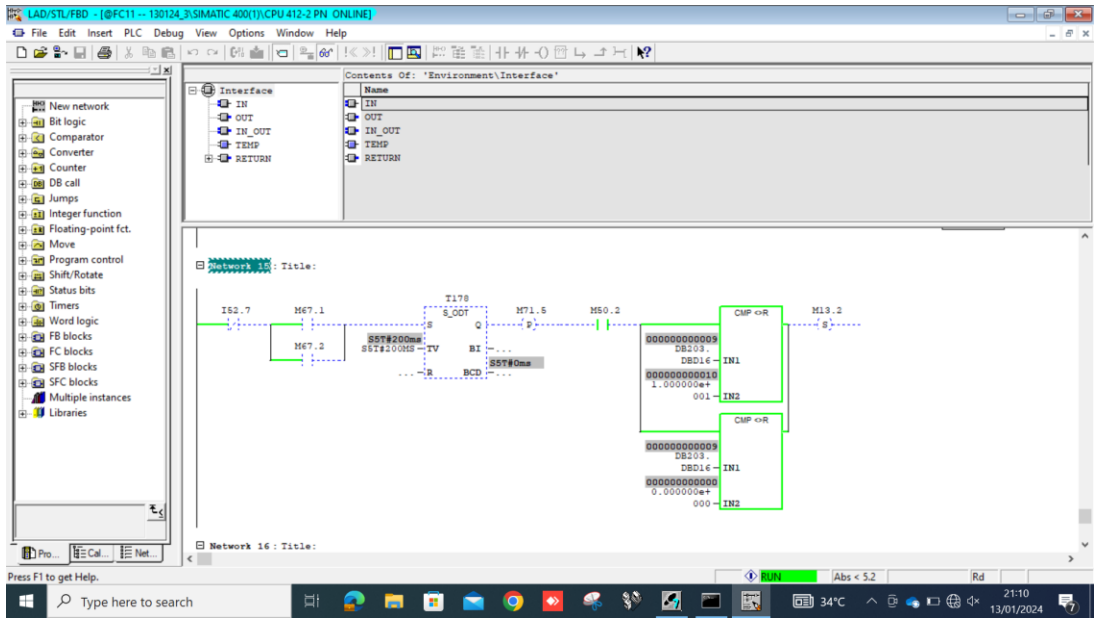
This project was undertaken for a client operating in the FMCG industry. The client faced challenges in the market with reported instances of incomplete cartons. In order to address and resolve this issue, our team proposed a process optimization of their conveyor system to include a pusher and weighing system- that rejects cartons lower than the agreed weight



The project included modification of the logic in the S7-400PLC, using Simatic step7.

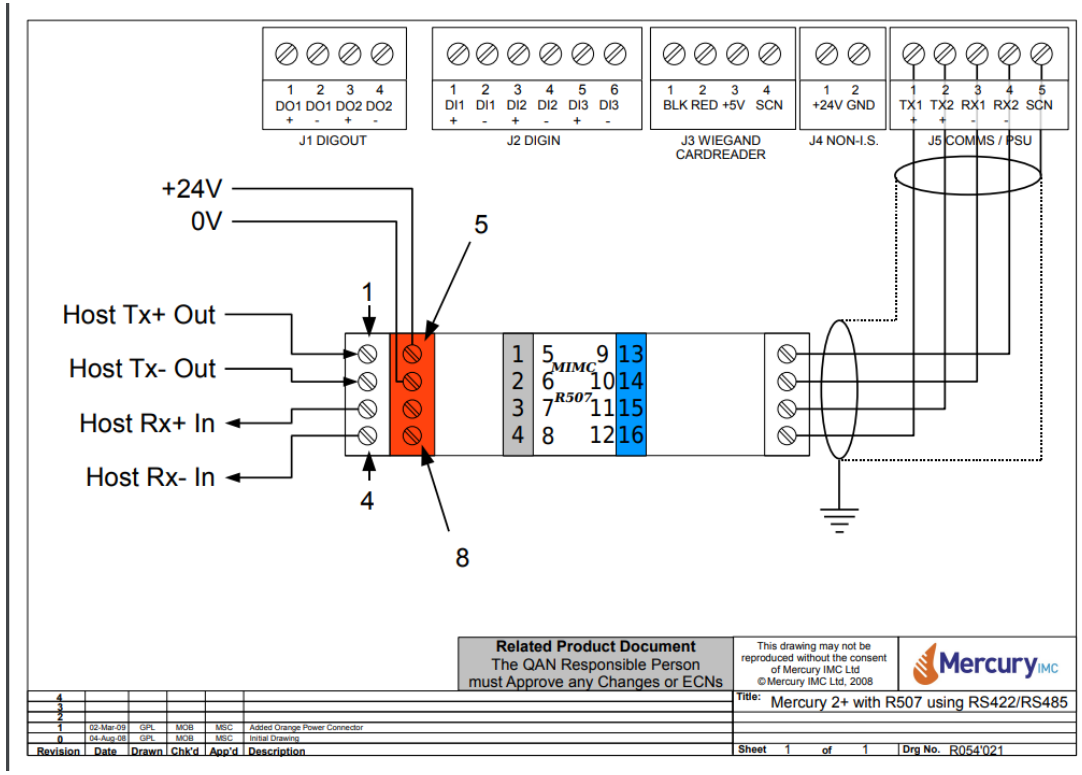
Incomplete carton rejection system





Integration of a Mercury 2+ HMI to HIMA H51q

The task involved configuring Modbus and mapping data between the H51q dual processor and the Human-Machine Interface (HMI). Utilizing the PLX31-MBTCP-MBS4 module enabled successful communication between the controller and HMI, each using ModbusTCP and Modbus serial types within the Modbus protocol. Additionally, modifications to existing function blocks for the DCS.



Meteorological system upgrade of an FPSO

This project we upgraded functional and non-functional parts such as:

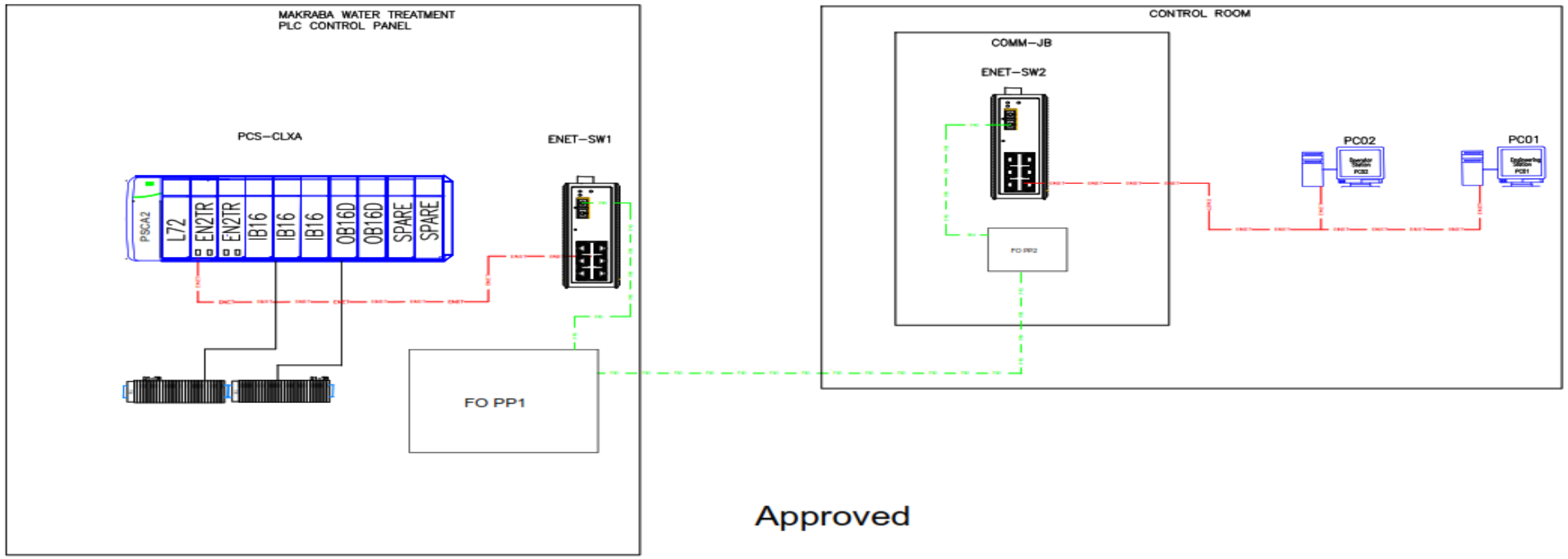
- Wave monitoring system(WaMos)
- Current direction and speed
- Precipitation sensor
- PSI unit
- Air temp and Humidity sensor

The Learning curve of this project was the proper understanding of serial communication and use of Putty

Makaraba Water treatment Plant Upgrade

- The automation of a water treatment plant involves the integration of advanced control systems and technology to optimize the operation, efficiency, and reliability of the water treatment processes. This transformation brings numerous benefits, addressing key challenges and enhancing overall system performance.
- This project involves programming of an Allen Bradley ControlLogix PLC, with Studio5000, HMI/SCADA development with Intouch.

MAKARABA PRODUCTION PLANT – Control System Architecture



Approved

LEGEND:
- ETHERNET NETWORK
- FIBRE OPTIC
- HARDWIRE

NOTES:
1.
2.

S/N	REFERENCE DRAWINGS	REV	DESCRIPTION	DATE	DRAWN BY	CHK BY	APPR'D BY
06		K06	RE–ISSUED FOR REVIEW	06–08–24	RR	UM	UM
05		K05	RE–ISSUED FOR REVIEW	05–08–24	VA	UM	UM
04		K04	RE–ISSUED FOR REVIEW	29–07–24	VA	UM	UM
03		K03	RE–ISSUED FOR REVIEW	26–06–24	RR	UM	UM
02		K02	RE–ISSUED FOR REVIEW	21–05–24	RR	UM	UM
01		K01	ISSUED FOR REVIEW	01–05–24	RR	UM	UM

PROJECT: MAKARABA WATER TREATMENT PLANT UPGRADE
LOCATION: MAKARABA PRODUCTION PLATFORM
SYSTEM: PROCESS CONTROL SYSTEM
TITLE: CONTROL SYSTEM ARCHITECTURE

SCALE: NTS | REV: K05 | SHEET NO: 1 of 1 | DWG. NO: GA–CNL–MKRB–200002–BLK–ARCH

CONTRACTOR: Gil Automations
CLIENT: Chevron

Skills

- Programming and coding skills: Ladder logic, Functional block diagram, Structured text, Python and C.
- Hardware: PCS7, and ControlLogix.
- HMI development: Aveva Wonderware, Studio5000 view, and WinCC.
- Control Systems Design
- Actuators and sensors integration
- Simulation tools: MATLAB and Proteus
- Adaptability and Continuous Learning