LOG BOOK WEEK NO: 5 – 6

WEEK NO	DATE	BRIEF DESCRIPTION OF DAILY ACTIVITIES

Logbook Weekly Evaluation by HOST COMPANY SUPERVISOR					
Instruction to Host Company Supervisor Please refer to the student's Logbook Report to assess his/her performance. Please award the scores based on the range below:					
Student's Score	**Beginning (<2.0)**	**Developing (2.0 to <3.25)**	**Accomplished (3.25 to <4.0)**	**Exemplary (4.0 to 5.0)**	**Score**
Tasks Accomplishment & Commitment (CLO4)	Partially accomplished given tasks despite full supervision	Accomplished given tasks but with full supervision	Accomplished given tasks but with some supervision	Accomplished given tasks with very minimum supervision	**/5**
Attendance & Punctuality (CLO4)	Frequently absent and always late	Sometimes absent and sometimes late	Never absent and almost always on time	Never absent and always on time	**/5**
Attitude & Self Control (CLO4)	Unable to demonstrate positive attitude and hardly maintained self-control under pressure	Occasionally demonstrated positive attitude and occasionally maintained self-control under pressure	Sometimes demonstrated positive attitude and maintained self-control under pressure	Consistently demonstrated positive attitude and consistently maintained self-control under pressure	**/5**
				Total Score	**/15**
Comments:					
Host Company Supervisor's Signature & stamp:					
Name & Designation:					
Date:					

(make copies if necessary)

DETAIL REPORT **WEEK NO: 5**

Objective(s) of the activities :

Preparing for the soft launch of Developer R by addressing technical issues, improving database functionality, and resolving compatibility problems with software and hardware components.

Contents :

On 02/10/2023 (Monday), I proceeded with the trial run for the exercises that were chosen for the soft launch of Developer R, involving the use of a MySQL database with MariaDB as the Database Management System (DBMS). I encountered an issue during the MariaDB installation, which I managed to resolve through online research. Additionally, I encountered difficulties with Node-Red while trying to download the MySQL palette for connecting Node-Red to MySQL, but after discussing it with a senior application engineer, we successfully resolved the problem.

On 03/10/2023 (Tuesday), I had a brief discussion with my HCSV and a senior application engineer regarding the exercises for the soft launch, specifically focusing on the database aspect. Following our conversation, I proceeded to work on retrieving data from the database and displaying it on the dashboard designed using Node-Red.

On 04/10/2023 (Wednesday), I conducted some research on MySQL and JavaScript, as Node-Red is JavaScript-based and MariaDB is MySQL-based, to enable Node-Red to read data from the database effectively. After thorough research, I successfully managed to read data from the database and display it on a Node-Red dashboard with a graph chart for data visualizing. Subsequently, I carried out a voltage test on CtrlX I/O and observed a reading of approximately 6.7V when it was in the "False" state, with no current flow detected. After noticing the presence of 6.7V without any current flow while CtrlX I/O was in the "False" state, I began to contemplate potential issues. My initial concern revolved around whether the 6.7V could inadvertently trigger the gate of an MOSFET, especially considering that MOSFETs can be triggered by voltage alone.

On 05/10/2023 (Thursday), I participated in the career day organized by Robert Bosch Malaysia in Petaling Jaya. Furthermore, the senior application engineer successfully resolved the issue with WebIQ, allowing me to begin work on the design of the WebIQ dashboard, which I completed on the same day. However, a new problem emerged where the WebIQ could not run on the CtrlX core.

On 06/10/2023 (Friday), I conducted a test on CtrlX I/O using a MOSFET-based H-Bridge Motor Driver and observed that the MOSFET was triggered during the "False" state which verified my concern. I promptly reported this situation to my HCSV. After that, I talked to my HCSV about the WebIQ issue, but even after discussing it in detail, we couldn't figure out what was causing the problem. We both thought that the WebIQ version 2.14 might not work well with my current CtrlX core version, which is 1.16. Later, I asked a senior application engineer for advice, and they also mentioned that the WebIQ version 2.14 might not be compatible with my CtrlX core version. In addition to this, I posted my question on the CtrlX community forum to seek further assistance and insights.

DETAIL REPORT **WEEK NO: 6**

Objective(s) of the activities :

Firmware upgrades, compatibility testing, exploration of long-range access methods, and learning about PLC programming methods.

Contents :

On 09/10/2023 (Monday), I received a response from the CtrlX community forum, indicating that WebIQ 2.14 may not be compatible with my current CtrlX core version. It was a common belief that this compatibility issue was the root cause of the problem, leading us to make the decision to upgrade the firmware for my CtrlX core. Subsequently, I initiated the upgrade process by downloading the necessary software and seeking out relevant documentation. Once I had completed the downloads and gathered the required documentation, I began working with CtrlX Virtual Version 1.20, which is the second-to-latest version available for CtrlX core. I opted not to use the latest version, Version 2, due to its lack of stability and the unavailability of software support. Additionally, I began learning about Ladder Diagram, one of the programming methods for PLCs, specifically in Version 1.20, through both documentation and instructional content on YouTube.

On 10/10/2023 (Tuesday), I updated the firmware and software for my CtrlX Core to version 1.20. Following the update, I encountered some issues, but I was able to resolve them after conducting some research in the community forum. Subsequently, I proceeded to test all the programs I had previously written, including PLC, OPC UA, and Node-RED, to ensure their proper functionality. After thorough testing, I confirmed that all functions were running smoothly. I also attempted to run WebIQ version 2.14 on my CtrlX Core, and fortunately, it worked flawlessly. This indicated that the initial problem we encountered was due to version incompatibility.

On 11/10/2023 (Wednesday), I am contemplating whether it's possible to establish long-range access to the CtrlX Core without utilizing a VPN server, solely by configuring the router's firewall to allow specific IP addresses to access the CtrlX Core. This idea emerged because I learned that some System Integrators have achieved long-range access to a CtrlX Core using a VPN server. However, this method typically involves a cost for the VPN server service, which prompted me to explore the option of configuring the firewall, which is free of charge. To pursue this idea, I began by delving into research on internet protocols (IP), ports, port forwarding, network connections, servers, and

related topics. In addition to my personal research, I sought advice from senior colleagues in the fields of data security and IT. The senior from the data security department cautioned that directly connecting to the CtrlX Core without a VPN might pose a risk of data leakage. On the other hand, the senior from the IT department acknowledged that the concept could potentially work but highlighted that there might be some challenges involved in configuring the router's firewall.

On 12/10/2023 (Thursday), One of my senior colleagues lent me his router to test my idea, which involved configuring the router's firewall to allow specific IP addresses to access. Unfortunately, I encountered some difficulties and couldn't pinpoint the exact problem. Although conducting more research and testing, I consistently faced failures. Additionally, during testing, I noticed that our external IP, also known as the Public Network IP, kept changing every half an hour. After several unsuccessful attempts, I decided to change my approach and explore connecting to CtrlX Core through a VPN. I discovered that we could create our own VPN server using OpenVPN. I attempted to set up the VPN server by downloading the Ubuntu Linux operating system and virtual machine on my company laptop. However, I encountered a roadblock when I realized that the company's VPN blocked access for virtual machines. This forced me to halt my testing. Furthermore, I couldn't continue the testing on my personal laptop because it lacked sufficient storage for virtual machines and the Ubuntu Linux operating system. Instead of pursuing the VPN setup further, I shifted my focus to learning how to create our own function block and function block diagrams for PLC in the CodeSys environment.