**Bachelor of Engineering (Honours) in Software and Electronic Engineering**

**GMIT Department of Electrical and Electronic Engineering**

**Year 1**

**Industrial Automation**

**Gabriel Farragher 2022**



# Student Details:

* Date: January – April 2022
* Module: Industrial Automation
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* Document: Lab Reports

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# Lab 6 Ex 1 Introduction to Sequence Programming:

Specification: The Mitsubishi PLC controls a 5-segment sign with the following sequence:

OPEN

**PLC I/O Addresses:**

**Input Schedule:**

* **X1 DI01 iOn\_Switch**

**Output Schedule:**

* **Y0 DO00 oBorder**
* **Y1 DO01 oO\_Letter**
* **Y2 DO02 oP\_Letter**
* **Y3 DO03 oE\_Letter**
* **Y4 DO04 oN\_Letter**

**[Note: Save PLC software file as: GX W2 L6 Ex 1 GF]**

**Using LL/FBD write the sequence for the following:**

1. Sequence begins when Switch DI01 [X1] is turned On.
2. The Border and the letter O immediately on. Note: The Border remains On all through the sequence but each letter will only be on for 5 seconds.
3. P on for the next 5 seconds then Off,
4. E on for the next 5 seconds then Off,
5. N on for the next 5 seconds then Off,
6. Then the sequence repeats. The sequence will continue until the Sequence Switch DI01 switch is turned Off.

Develop a commented Sequence program for the above.

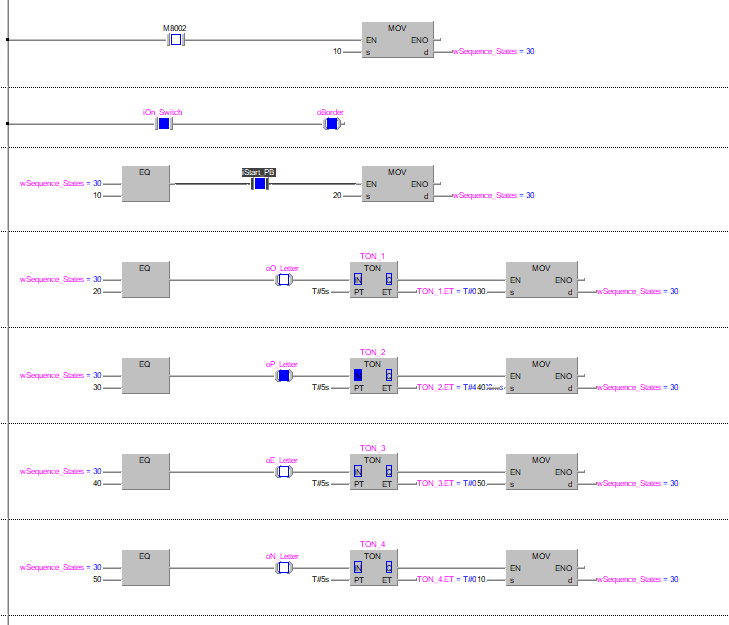
**Save PLC file as:** **GX W2 L6 Ex 1 GF A**

**Here is some help on where to begin:**

A picture containing graphical user interface

Description automatically generated

**Note:** M8002 is a special memory bit Mitsubishi PLCs use, and **pulses once** at **power up** or when **you turn simulation on**. It is used to reset or bring any **sequence back to the start**.



# Lab 6 Ex 2 Sequence Programming Continued:

Modify the above Sequence to operate as follows:

1. Sequence Switch DI01 is turned On.
2. The Border immediately Flashes at 1 second intervals. [Note: M8013 is a flashing pulse bit that will help here].
3. O immediately on for 5 seconds then Off,
4. P on for the next 5 seconds then Off,
5. E on for the next 5 seconds then Off,
6. N on for the next 5 seconds then Off,
7. Then all the letters start flashing for 10 sec. with the border still ‘Flashing’.
8. The sequence will continue until the Sequence Switch DI01 switch is turned Off.

Develop a commented Sequence program for the above.

**Save PLC file as:** **GX W2 L6 Ex 2 GF A**

