

071605T4MCT

MECHATRONICS TECHNOLOGY LEVEL 5

ENG/OS/MC/CR/04/5/A

Operate Robotic and Automated Systems

Nov/Dec 2024



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

PRACTICAL ASSESSMENT

TIME: 4 HOURS

INSTRUCTIONS TO CANDIDATE

1. You are required to perform the following task.

TASK 1: Wire the PLC external circuit as shown in figure 1.

in figure 1.

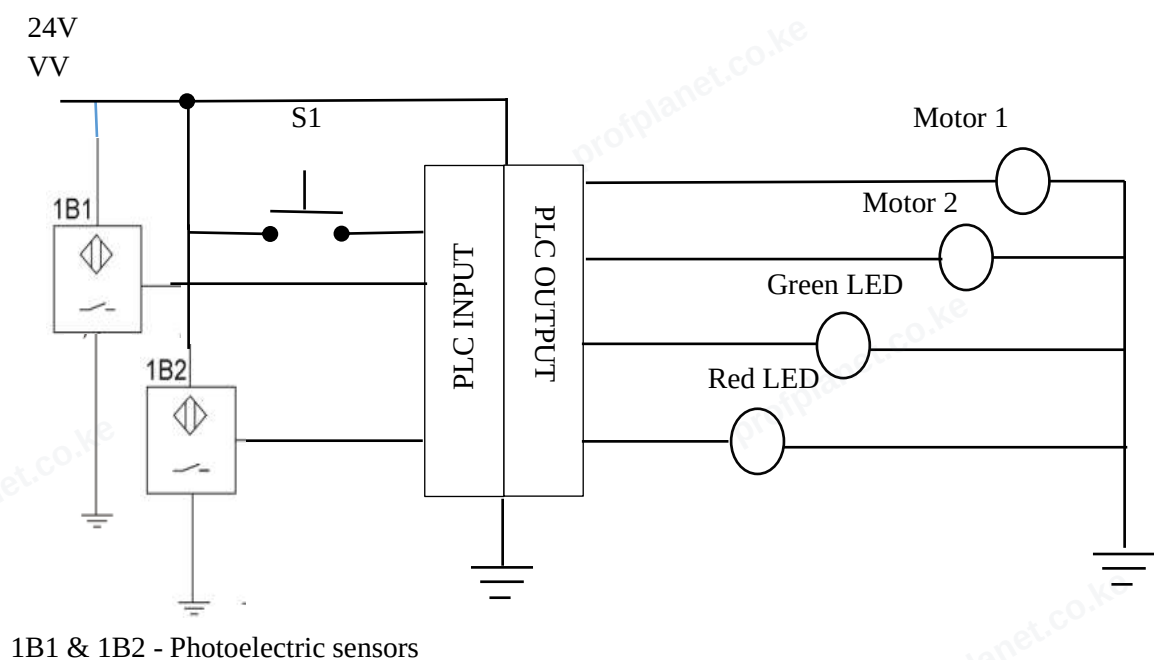


Figure 1

TASK 2: Develop a PLC program to perform the following:

- i. When start push button S1 is pressed Green LED turns ON;
- ii. When Photoelectric sensor 1B1 is triggered using a red plastic work piece, motor 1 and motor 2 runs in forward direction and Red LED turns ON;
- iii. When Photoelectric sensor 1B2 is triggered using a red plastic work-piece, motor 1 and motor 2 stops and both indicator lamps turn OFF.

TASK 3: Test and operate the system

2. You have been provided with the following resources for the practical tasks:

- i. A computer installed with PLC programming software
- ii. PLC with digital inputs and outputs provision
- iii. Programming cable
- iv. Push-button switch
- v. Indicator lamps; red and
- vi. Photoelectric sensors
- vii. DC Power supply
- viii. 24V DC motors
- ix. Multimeter
- x. Connecting wires (stranded 1.0mm)
- xi. Precision screw drivers
- xii. Red plastic workpiece
- xiii. Wire stripper
- xiv. Side cutter