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| **Course Name:** | **Automation and Control System** | **Semester:** | **V** |
| **Date of Performance:** | **23/10/2024** | **Batch No:** | **B - 1** |
| **Faculty Name:** | **Prof. Shila Dande** | **Roll No:** | **16014022050** |
| **Faculty Sign & Date:** |  | **Grade/Mark:** |  |

**Experiment No: 10**

**Title: Water Tank Filling System**

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| **Aim and Objective of the Experiment:** |
| 1. Develop an application specific ladder program using counters. |

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| **COs to be achieved:** |
| CO4: Interface PLC using proper communication device |

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| Theory: |
| A **ladder PLC water tank filling system** is an automated way to control the water level in a tank using a **Programmable Logic Controller (PLC)**. It uses sensors to detect water levels and controls a pump to fill the tank when needed.  **Components:**   1. **Water Tank**: Holds water that needs to be filled to a certain level. 2. **Level Sensors**: Two sensors are used:    * **Low-Level Sensor**: Detects when the water level is too low.    * **High-Level Sensor**: Detects when the water level is full. 3. **Water Pump**: Fills the tank with water when the level is low. 4. **PLC**: The brain of the system that controls the pump based on sensor inputs.   **Working:**   1. **When the water level is low**, the low-level sensor sends a signal to the PLC.    * The PLC turns on the water pump to start filling the tank. 2. **When the tank is full**, the high-level sensor sends a signal to the PLC.    * The PLC turns off the pump to stop filling the tank. 3. The system repeats this process automatically to keep the water level between the low and high sensor levels.   **Ladder Logic:**  In the PLC’s ladder logic:   * The **pump turns on** when the low-level sensor is triggered. * The **pump turns off** when the high-level sensor detects the tank is full.   This system makes sure the water tank is always filled without manual control |

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| Screenshots: |
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| **Conclusion** |
| The ladder PLC water tank filling system automates the process of maintaining water levels by controlling a pump based on sensor inputs. This ensures efficient and reliable water management without the need for manual intervention. |