**PLC Ladder Logic Control System – Project Summary**

This PLC project is a ladder logic control system developed using Rockwell Automation's Logix Designer. The program simulates a basic industrial process that responds to push button inputs, uses timers and counters for logic operations, and activates outputs based on time and count thresholds. It includes features like Start/Stop control, a retentive timer, a looping free-running timer, counter-based logic, and outputs triggered by specific time ranges and one-shot conditions.

The project is useful for students, technicians, and engineers learning PLC programming. It demonstrates foundational concepts such as latch logic, retentive vs. non-retentive timers, counters, one-shot pulse generation, and output control based on logic conditions. These are essential for real-world industrial automation applications.

To get started, users should open the project in RSLogix 5000 or Studio 5000 Logix Designer and connect to a compatible Allen-Bradley PLC (like CompactLogix or ControlLogix). By simulating or wiring the inputs and observing outputs on the configured addresses, users can follow and test the program logic in real-time.

For help with the project, users can refer to Rockwell Automation documentation, seek support from their PLC programming course instructors, or explore online PLC forums like PLCTalk.net. The logic structure is labeled clearly to help understand each rung’s function.

The project is maintained by its creator (you), and contributions or improvements can be made by other students or engineers working with Rockwell-based PLC systems. It serves as a hands-on educational tool for mastering core automation concepts.