Automation of Capacitor Charging Power Supply (CCPS) for inductively driven Pellet Injector System using SIEMENS PLC

Abstract

A Capacitor Charging Power Supply has a motorized auto-transformer, step-up transformer, and high-voltage capacitor. The automatic charging of the capacitor uses a Siemens PLC. The work starts with the study of the existing system requirements. It involves the PLC ladder logic development using the Siemens TIA Portal. Some of the automation tasks are reading the auto-transformer's output voltages, high voltage capacitor voltages using analog inputs and then operating the motor of the auto-transformer as per the user settings. The work also involves user interface development for the operator.

Pre-requisite:
• Knowledge of basic electronics and rectifier circuits.
• Basic PLC ladder programming skills, PLC programming.

Academic Project Requirements:

1) Required No. of student(s) for academic project: <u>3</u>

2) Name of course with branch/discipline: <u>B.E./B.Tech.</u> <u>Electronics and Instrumentation Engineering</u>

3) <u>Academic Project duration:</u>

(a) Total academic project duration: <u>16</u> Weeks
(b) Student's presence at IPR for academic project work: <u>5</u> Full working Days per week

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