Automation Of Ration Products Distribution System

ABSTRACT

Our project focuses on design and implementation of Automation of Ration Shop. In recent scenario, all the public and private sectors go for automation in their process. Civil Supplies Corporation is the major public sector which manages and distributes the essential commodities to all the citizens. In that system various products like Rice, sugar and kerosene are distributed using conventional ration shop system.

Some of the limitations of conventional ration shop system are

- Due to the manual measurements in the conventional system, the user can not able to get the accurate quantity of material.
- And also there is a chance for the illegal usage of our products in the conventional system. i.e. the materials are robbed by making wrong entries in the register without the knowledge of the ration card holder. Due to that large amount of money given by government gets wasted.
- The Ration shops cannot able to meet the requirements of the user due to the over population of our country. So the processing speed is low As a result, there is always crowd of people in the ration shop.
- Due to the human operations the working hours of the ration shops are restricted, so that the user cannot able to get the material at any time i.e. 24 * 7 basis.

To overcome these problems we go for the automation of the ration shops using embedded PLC. In our project, we have desired to control the parameters Level and Load by CUBLOC PLC.

1.1 OVERVIEW OF THE PROJECT

PDS (Public Distribution System)

Public Distribution System in Tamil Nadu is a universal system to cover all the needy families by supplying the commodities at a price fixed by the Government of Tamil Nadu.

Some of the commodities distributed under Public Distribution system are

- Rice
- Kerosene
- Sugar

Main Problems in the conventional PDS system

- Illegal Usage
- Can not able to get the accurate quantity of supplies
- Over crowd
- Can not able to get the material at any time
- Processing speed is slow
- Selection of households – Targeting
- Bogus cards
- Hijacking of ration cards
- Poor quality of supplies
- More than the prescribed rates are charged

To overcome those problems, we are going for the Automation of ration shop. In our project we designed the hardware for two commodities namely Sugar and Kerosene. These two commodities are stored in reservoir tanks and they are measured and supplied to the user as and when required.

The user has to enter the required product and quantity using a keypad and LCD display. For the measuring purposes, we use load cell for sugar and Resistance type Ball float Level Sensor for Kerosene.

And these parameters are controlled by the Embedded PLC CUBLOC. Motorized gate valves are used for the measurement and delivery operations. We designed four tanks, two of them are reservoir tanks and another two of them are delivery tanks.

Basic Block Diagram