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PLC-BASED SCHOOL AUTOMATION SYSTEM

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ABSTRACT

In our day to day in school we observe that in school too much human effort is required to open and close the gate of school, ring the bell after every 1 hour,and tube lights and fans in the class are on even if there is no one in the class .It does notsave poweras well as time .Due to this drawback we implemented automatic operation of school using PLC.

KEYWORDS: PLC ,Push Button ,selector Switch ,Sensor, Motor, SMPS

INTRODUCTION

In this paper we are using PLC to control the school functions. Programmable Logic Controllers (PLC) is a simply a special computer device used mainly for industrial control system. There are many industries such as oil refineries, manufacturing lines, conveyors systems and so on. This PLC includes CPU this is used to run the program and monitor various inputs and logically support the outputs for required control. This means PLC is very flexible and has high reliability, compact and economical and reduces human effort and save time.

MATERIALS& METHODS

A.PLC (Programmable Logic Controller)

PLC is a digital device that uses a programmable memory to store instruction and to implement Be specific function such as logic sequence timing , counting and arithmetic operation to control machines and processes .The main difference of PLC from other system is that it is protected from environmental conditions (such as cold, moisture , dust and heat). PLC have external I/O module connected to computer network can plugged to plc. It can be used in very high controlling application plc. Operate on desktop of computer can interface with high controlling applications of hardware while programmer executing of control system.In 1968 plc development began. In feedback to a request from an US car manufacturer (GE). The first PLCs were installed in industry in 1969.the initial plc only features for controlling relay functionality and were programmed in rll (relay ladder logic)

B .Software used

The CX-One software suite allows users to build, configure, and program a host of devices such as PLCs, HMIs, motion-control systems and networks using just one software package with one installation and license number. This greatly reduces the hassle of software maintenance and management at both the End-User and OEM level. Omron is the only automation software provider that employs an online Auto Update system, allowing users to easily download and install updates

C.Ladder Diagram

Ladder logic was originally a written method to document the design and construction of relay racks as used in manufacturing and process control.Each device in the relay rack would be represented by a symbol on the ladder diagram with connections between those devices shown. In addition, other items external to the relay rack such as pumps, heaters, and so forth would also be shown on the ladder diagram.

Ladder logic is used to develop software for programmable logic controllers (PLCs) used in industrial control applications. The name is based on the observation that programs in this language resemble ladders, with two vertical rails and a series of horizontal rungs between them
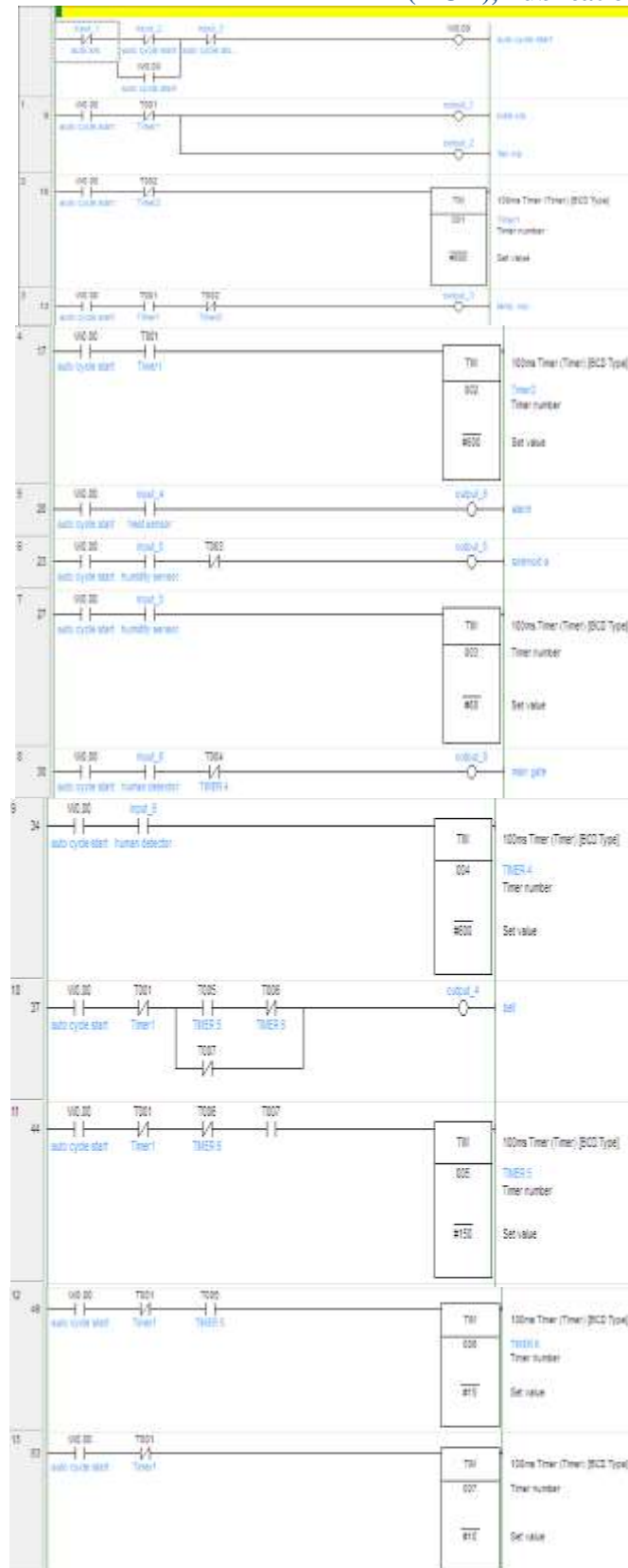
Functional Block Diagram of School Automation
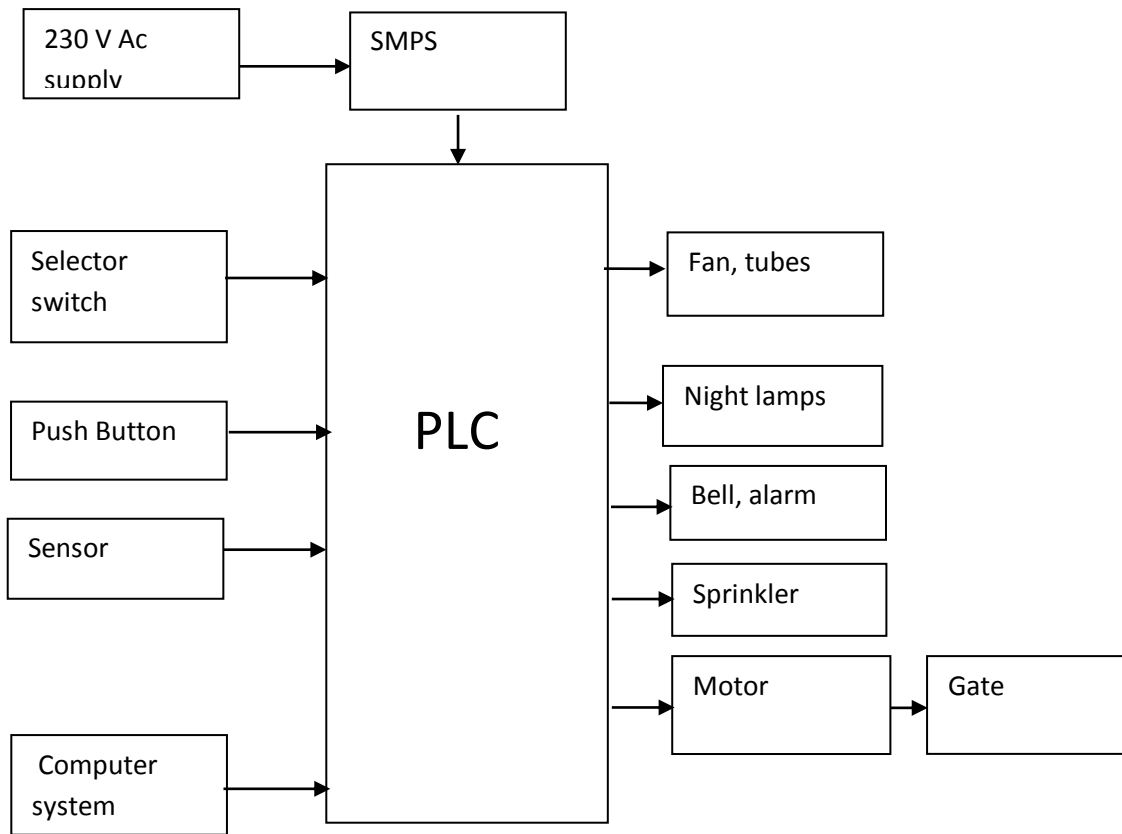
ADVANTAGES

PLCs are regularly used to automate huge processing plants since they have the following advantages:

1) Better accuracy   3) Reduced critical wiring
2) Repeatability   4) Simple operation

APPLICATIONS

1. To control individually various processes.
2. To supervise various processes or a single process
3. To control any time varying parameter.
4. It is being used as a major problem solving tool in many industrial applications.

RESULT

While operating all the functions that can be observed by the computer system using CX-programmer. This is first debug .This system is test run very carefully for safe operation.

CONCLUSION

The simple and smooth wiring is merit given by the PLCs is very much. Actually it is the one of the most important feature of PLC. Due to smooth wiring control system has make easy and inexpensive. It reduces the human efforts and increases the efficiency of the system.

FUTURE RECOMMENDATION

 Due to some obstacles in catching signals devices like CCTC and sprinklers we have taken it as future recommendation.In order to increase the performance and better reliability and we can control things wireless like gate, alarms, notice board etc.

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