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PLC Based Automated Conveyor Belt Assembly Line

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Abstract: Our project car automation is completely PLC based project. PLC is programmable logic controller which is one the kind of microprocessor .Our project is a prototype of how the car is manufactured in the industries with the suitable use of PLC. We have used a various components in our project such as dc motor, sensors, conveyer belt, lift etc. All the components are majorly controlled by PLC. The main purpose of this project is to reduce the risk to human life as all the functions are automate.
Keywords: PLC, HMI, Automatic configuration, Hardware Configuration.

I. INTRODUCTION

In this project we are using the PLC to control the movement of cranes, conveyer belt, sensor, lift, and the movement of vehicle. PLC plays a very important role in the system which is used for automation PLC is a microcontroller used for automation process and operates as controlling the factory machineries .The plc programs is use to control the difficult sequencing easily. The PLC is packaged and designed to withstand temperature changes, sooty conditions, resistant to electrical noise.With the use of PLC in the car automation there is rapid increase in the production of cars and increases the work efficiency.

II. LITERATURE SURVEY

A. Vijay Kumar Khatri, Ahsan Jaeved Ghangro, Jetandar Kumar and Syaed Jaadd UI Haqeue.," Industrial Data Acquisition and ControlSystem using two PLCs' Networked over MPI Network", 2009 IEEE symposium on Industrial Electronics and Application has explained about the automation of the conveyor belt and the implementation of the plc program.
B. Coiia Feerrater-Simon, Llluis Maolas- Balaada, Oriiol Gomsis-Bellimunt,"A Remote Laboratory Platform For ElectricalDriveControl Using Programmable Logic Controllers". ,IEEE TransactiononEducation,Vol,52,No.3,August 2009 has explained about the conveyor belt which works according to the plc program and usage of manual labour in the industry.
C. S. Dana, A. Sagahhayroon , A. Elrrayes, A.R. Al-Ali, R. Al-Ayyadi, "Development of a monitoring and control platform for PLC-based has explained the automated conveyor belt assembly line and lift process of the chahis line and automatic setup of the engine and other body parts.

III.DEFINATION OF PLC

A PLC is an industrial computer system that that is used to monitor the input state of devices and makes decisions based upon the ladder program to control the state of output. It is a specialized computer that is used to control machines and processes. It therefore shares common terms with typical computers like central processing unit, memory, software. The dictum logic is primarily involves implementing logic and switching operations Input devices e.g. switches, and output devices e.g. motors, which are controlled are connected to the PLC and then the controller monitors the inputs and outputs in conformity with the program that is stored in the PLC by the operator as per the user requirement.

A. *Functional Block Diagram*
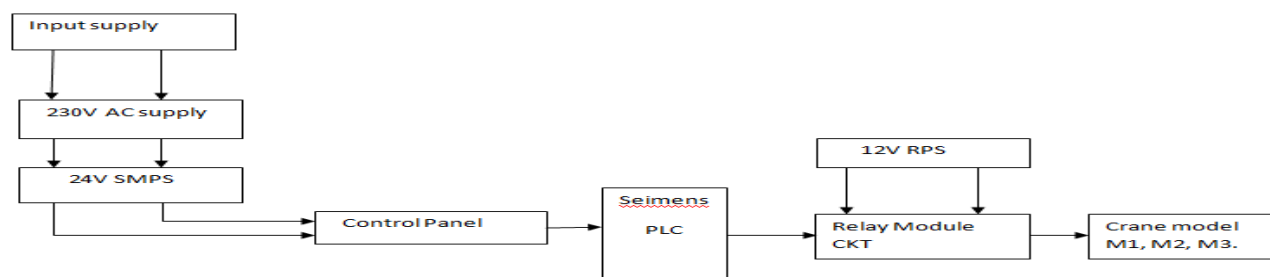
1) INPUT SUPPLY

The 230 V AC is applied to the control panel of the Siemens PLC.

2) CONTROL PANEL

The Siemens PLC processes the input and gives the output as per the user requirement to the relay module circuit.

3) RELAY MODULE:

Let us consider a ladder diagram, it consists of an individual rung. The left part of the rung consists all   input instructions and the right part of the rung consists of all output instructions .In this example shown below, where input is a normally open switch and output is a bulb. When the input is given to the ON switch then it becomes close switch and then the bulb will glow.
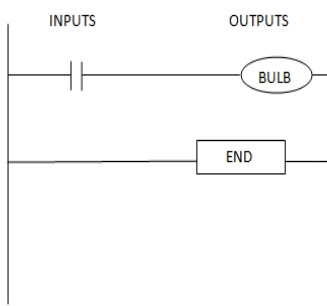
IV.CONCLUSION

The programmable controllers provides tremendous advantage of soft wiring and it is very important feature of PLC, so it makes control system easy and cheap.This idea was structured commercially which will give an efficient monitoring and controlling of conveyor belt. Once this product is launched in industries there will be a vast control and monitoring capability

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