

# PLC and Control Panel Up-Gradation from Messung to Mitsubishi

**Mr. Vijay Patil**

*Assistant Professor*

*Department of Electronics & Telecommunication Engineering  
Sandip Foundation's, Sandip Institute of Technology and  
Research Centre, Nasik, India*

**Antara Mhatre**

*Student*

*Department of Electronics & Telecommunication Engineering  
Sandip Foundation's, Sandip Institute of Technology and  
Research Centre, Nasik, India*

**Sayli Borade**

*Student*

*Department of Electronics & Telecommunication Engineering  
Sandip Foundation's, Sandip Institute of Technology and  
Research Centre, Nasik, India*

**Kamini Jadhav**

*Student*

*Department of Electronics & Telecommunication Engineering  
Sandip Foundation's, Sandip Institute of Technology and  
Research Centre, Nasik, India*

## Abstract

This research paper is based on the electronic refitting of control unit from older PLC that is Messung PLC to new PLC that is Mitsubishi PLC and using HMI. The system previously used was with the Messung PLC but now it is replaced to Mitsubishi PLC. Due to this the productivity has increased, better and good quality have made by Mitsubishi PLC.

**Keywords:** HMI, Messung PLC, Mitsubishi PLC, Variable Frequency Drive

## I. INTRODUCTION

Automation is a controlling process and reducing the use human intervention. PLC is used for controlling function of system and provides easy reprogramming, proper control and error free work. There are different programming languages that used in PLC that are Ladder language, Functional block diagram, Sequential Functional chart, Structural Text, Instruction List. When PLC program is run it will be continually in indefinite loop. An HMI machine is interface between human and machine. Here we have replaced the Messung PLC with Mitsubishi PLC.

## II. LITERATURE SURVEY

- 1) In [1] According to author of "PLC Controlled Low Cost Automatic Packing Machine". In this paper proposed work were done by using Messung PLC. In this Messung PLC for controlling action of the system effectively action using messung results in increased production, less time consumption and better safety the employees. But there are some disadvantages of the Messung PLC that are the modification is more, Scan time is more, Time consuming etc.
- 2) In [2] According to author of "HONING MACHINE SYSTEM WITH PLC". In this paper proposed work were done by using Honing Machine System. Honing is the process that improves the surface texture and provides proper surface appearance to look better. This honing operation is one of the most important steps in the production of ball bearing which is used in car,
- 3) In [3] According to author of "PLC based Control System for Hardening and Tempering Furnace in Heat Treatment Plant". In this paper proposed work were done by using PLC based Control System for Hardening and Tempering Furnace in Heat Treatment Plant. The automated process efficiently reduces the Human intervention required and also increases the efficiency of hardening and tempering raw steel bits. This paper gives very detailed information each of the components used in this project. This system is controlled with the Messung PLC.

## III. EXISTING SYSTEM

Before we have used the Messung PLC that have some disadvantage that are MTTR (Mean time to repair) is more, Modification is difficult, Scan time is more, Production is less to overcome all this disadvantages we used Mitsubishi PLC.

## IV. PROBLEM STATEMENT

In previous project, we have used Messung PLC. The disadvantages were MTTR (Mean time to repair is more, Modification is difficult, Production rate is less and Scan time is more. So to avoid this overcome we used Mitsubishi PLC. The Mitsubishi PLC

has the following advantages MTTR (Mean time to repair) is less, Optically isolated input are present, Modification is easy, Scan time present is less, Production rate present is more, So we have used Mitsubishi PLC for this advantage.

## V. PROPOSED OF SYSTEM

Automation is a reducing the human intervention control function to machine for: increasing productivity, reduced time, easily reprogrammed. This up gradation ensures higher production rate and will minimizes the disadvantages that are occur in Messung PLC. Also the quality of the product will increase.

## VI. OVERVIEW OF SYSTEM

The PLC based automated system controls mainly three types of control functions namely Hydraulic control, Pneumatic control and Motor control. The aim of PLC and Control panel up-gradation from Messung to Mitsubishi PLC. This is to make a project which would remove the redundancy of continuously manual work with less efficiency, so with more efficiency the automatic automation can be produced.

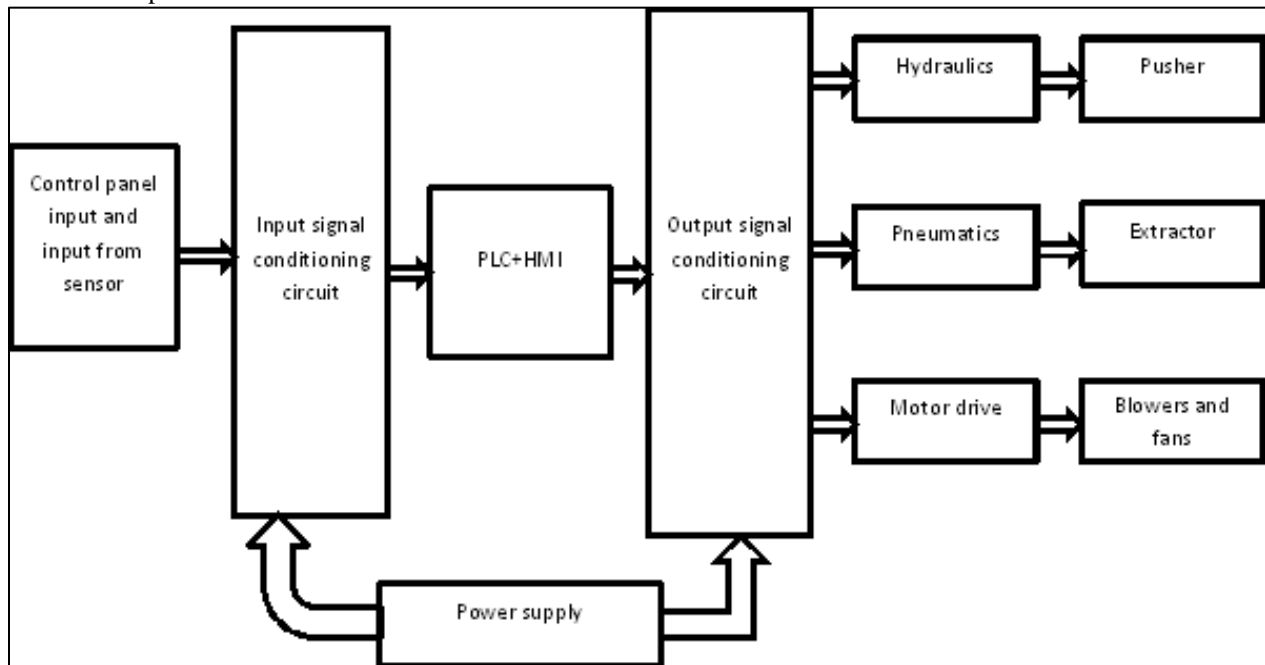


Fig. 1: Block Diagram of the system

## VII. MITSUBISHI PLC ON TO A SINGLE SYSTEM

With unique multiple CPU functionality, each process area of different application can be used to controlled by different CPU. Multiple CPU create an even wider boundaries for the PLC operations which combines up to 4 CPUs on to a single Q series system, which are dedicated CPUs for Process, Redundant, Motion.



Fig. 2: MITSUBISHI PLC

### A. Comprehensive Range of I/O

Q series includes a comprehensive range of inputs and outputs and intelligent function modules to meet the needs of wide range of applications. In addition to standard digital and analog input and output types, serial communications, Motion bus, Modbus, Profibus commutation modules are available to build a robust and ultra-fast network.

## VIII. FLOW CHART

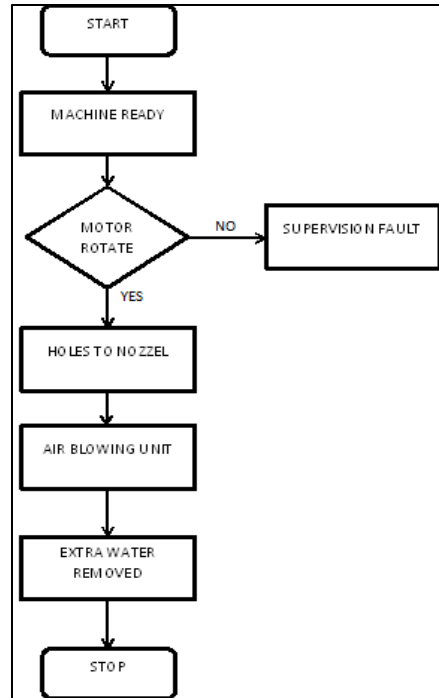


Fig. 3: Flowchart of system

## IX. APPLICATION

- The purpose of PLC in this system is to control and implement the nozzle which is further used as part in bearings which are used in car.
- Pairs of tapered PLC are used in car to simultaneously tolerate the vertical and horizontal force.

## X. CHALLENGES TO OVERCOME

After numerous studies have been done based on PLC. Before we have used Messung PLC which has some disadvantages that are MTTR (Mean time to repair is more, Modification is difficult, Production rate is less and Scan time is more. So to avoid this overcome we used Mitsubishi PLC.

## XI. CONCLUSION

The purpose of the PLC used in this system is to create holes in nozzle using the AGIE machine and removing the water from the nozzle using the Air blowing unit. This nozzle is used in bearings which are further used in car.

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