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# **Microcomputer Technology**

# **Chapter 2: Introduction to PLC**

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# Conclusion of The Chapter

Conclusion #1

- ....

- ....

Conclusion #2

- ....

- ....

- ....

- Conclusio #x
  - ......
  - ......
  - ......





# **Content Chapter 1**

- Microcomputer components
- Microcomputer architecture
- Introduction to PLC





# The Need for PLCs

- Hardwired panels were very time consuming to wire, debug and change
- GM identified the following requirements for computer controllers to replace hardwired panels





# History of PLCs





- Specialized computer used to control machines and process
- It uses a programmable memory to store instructions and specific functions that include ON/OFF control, timing, counting, sequencing, arithmetic and data handling



# Why PLCs?





# Hard Wire Elmination

Eliminates much of the hard wiring that was associated with conventional relay control circuits.



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# Reliable

Improved Reliability: A completed written and tested program is downloadable to other PLCs



# Flexibility

High flexibility: A new program or system update can be simply exchanged between OEMs and user via software.



### Economical



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# Troubleshooting



# **PLC** Architecture





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# PLC System



# I/O Configurations

#### Fixed I/O

- typically small PLCs
- Built as one package, with no separate removable units
- The processor and I/O are packed together
- Inexpensive but lacks flexibility



#### Modular I/O

- divided by compartments into which separate modules can be plugged
- Modularity increases selections and the unit's flexibility. Any modules available can be chosen and mix them in any way desired.
- When a module slide into the rack, it makes an electrical connection with a series of contact- called backplane. The backplane is located at the rear of the rack.





# POWER SUPPLY

- Supplies DC power to other modules that plug into the rack
- In large PLC systems, this power supply does not normally supply power to the field devices
- In small and micro PLC systems, the power supply is also used to power field devices.



# PROCESSOR (CPU)



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