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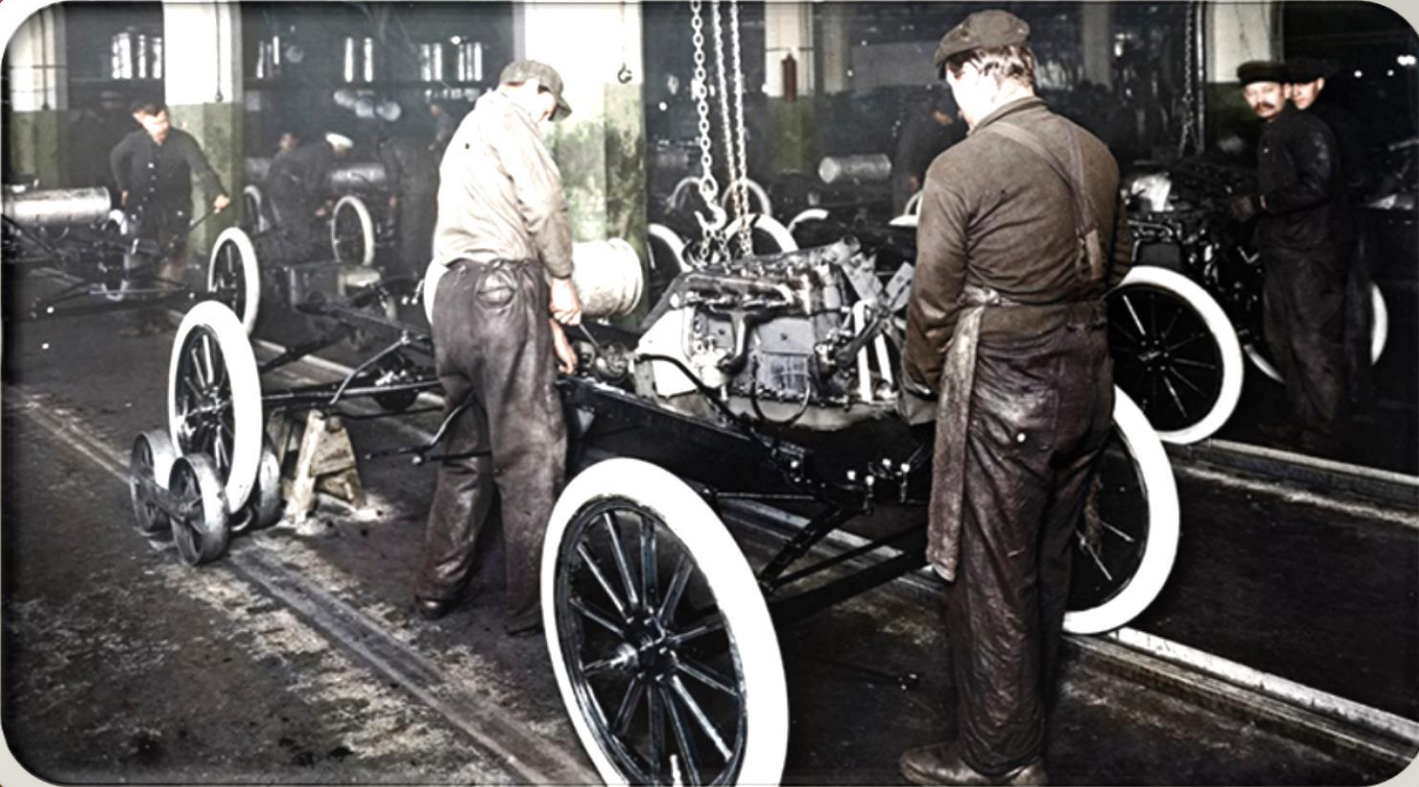
AUTOMATION IN MANUFACTURING



► *Automation or automatic control, is the use of various control systems for operating equipment such as machinery, processes in factories, boilers and heat treating ovens, switching in telephone networks, steering and stabilization of ships, aircraft and other applications with minimal or reduced human intervention. Some processes have been completely automated.*



- ▶ The term automation, inspired by the earlier word automatic (coming from automaton), was not widely used before 1947, when General Motors established the automation department. It was during this time that industry was rapidly adopting feedback controllers, which were introduced in the 1930s.





Automation has been achieved by various means including mechanical, hydraulic, pneumatic, electrical, electronic and computers, usually in combination. Complicated systems, such as Modern Factories, Airplanes And Ships Typically Use All These Combined Techniques.

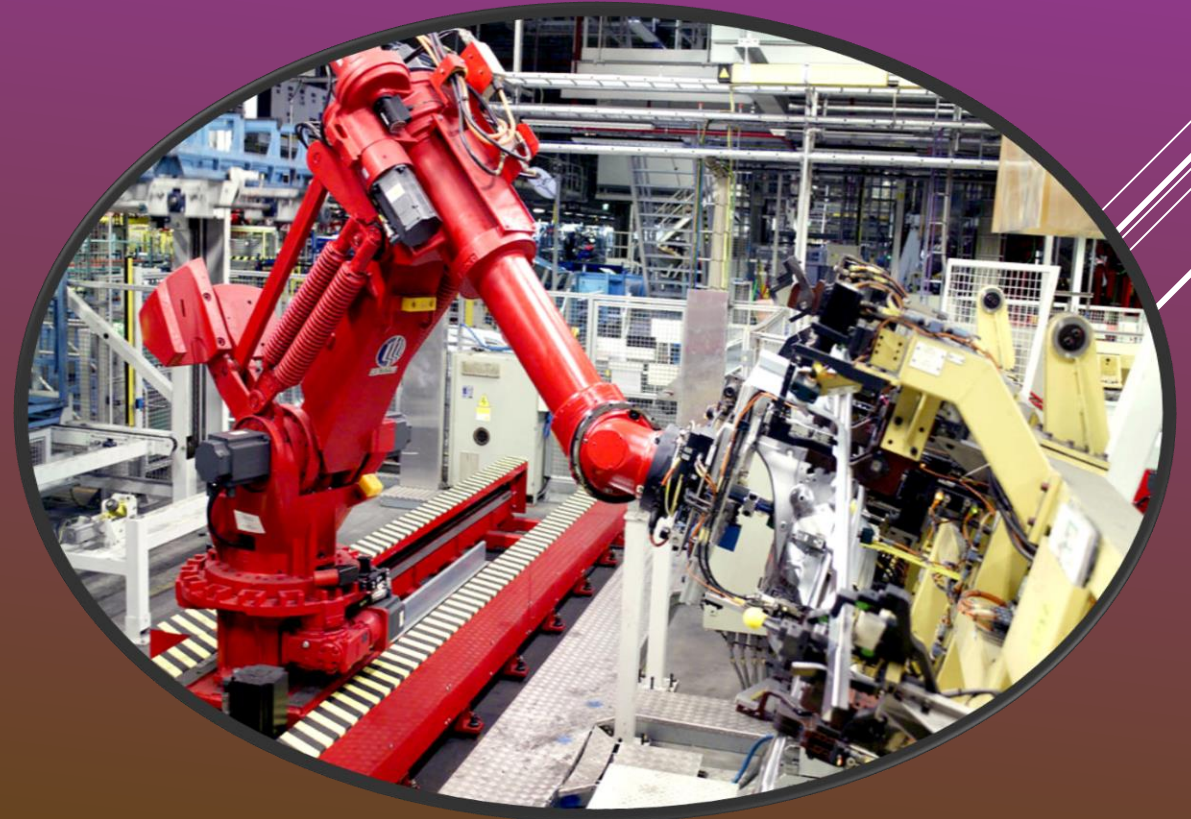
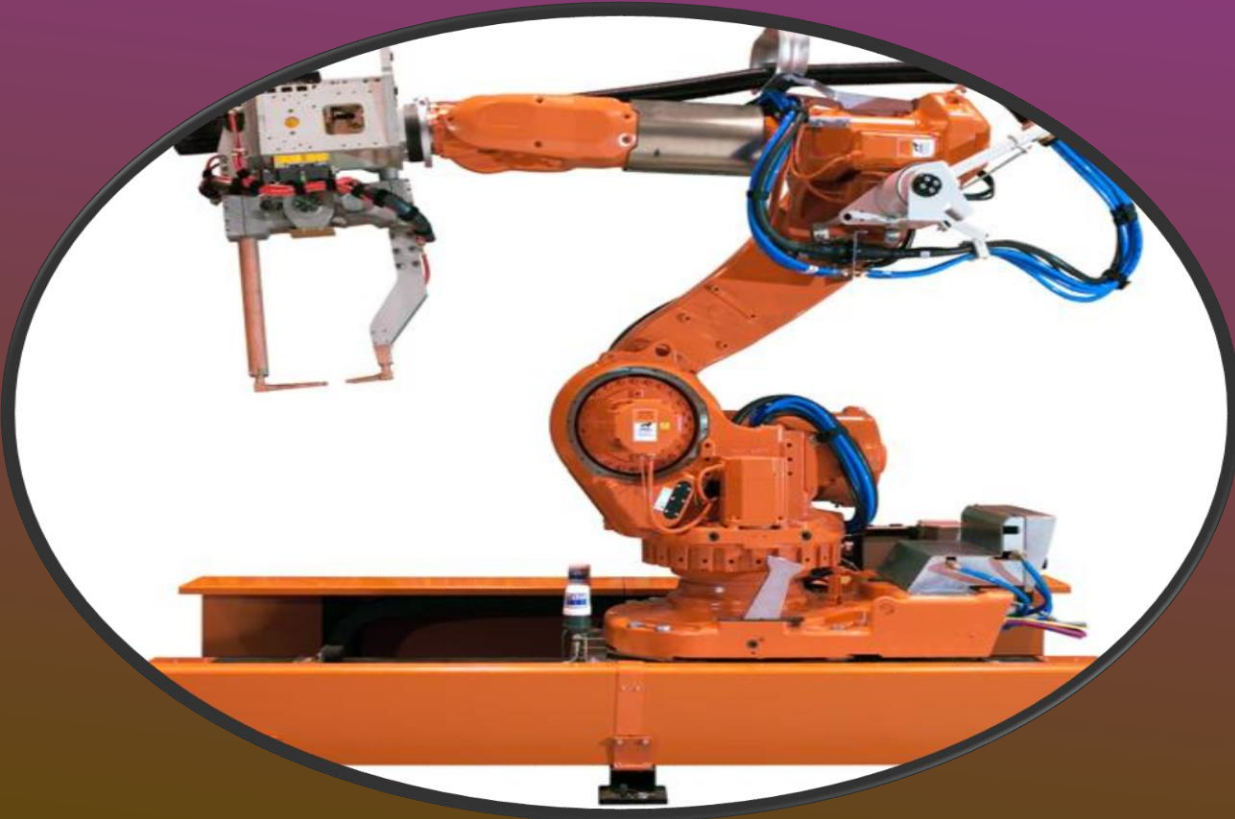
- ▶ Industrial automation in manufacturing is the use of “intelligent” machines in factories so that manufacturing processes can be carried out with minimal human intervention. It involves the application of various control systems to enable operating equipment to carry out on their own, with little human intervention, tasks that require speed, endurance and precision.



- ▶ *The main benefits of manufacturing automation include leaner operation processes that require less energy, less material, and reduced labor waste. These can lead to improvements in quality, accuracy, and precision.*



- ▶ Today's industrial robots have high computing capabilities, vastly improved vision systems, and increasing operational degrees of freedom. However, they are limited to operating in highly structured environments and, to a large extent, still need to be controlled by humans. They are also too specialized and inflexible for the use of small and medium industries.



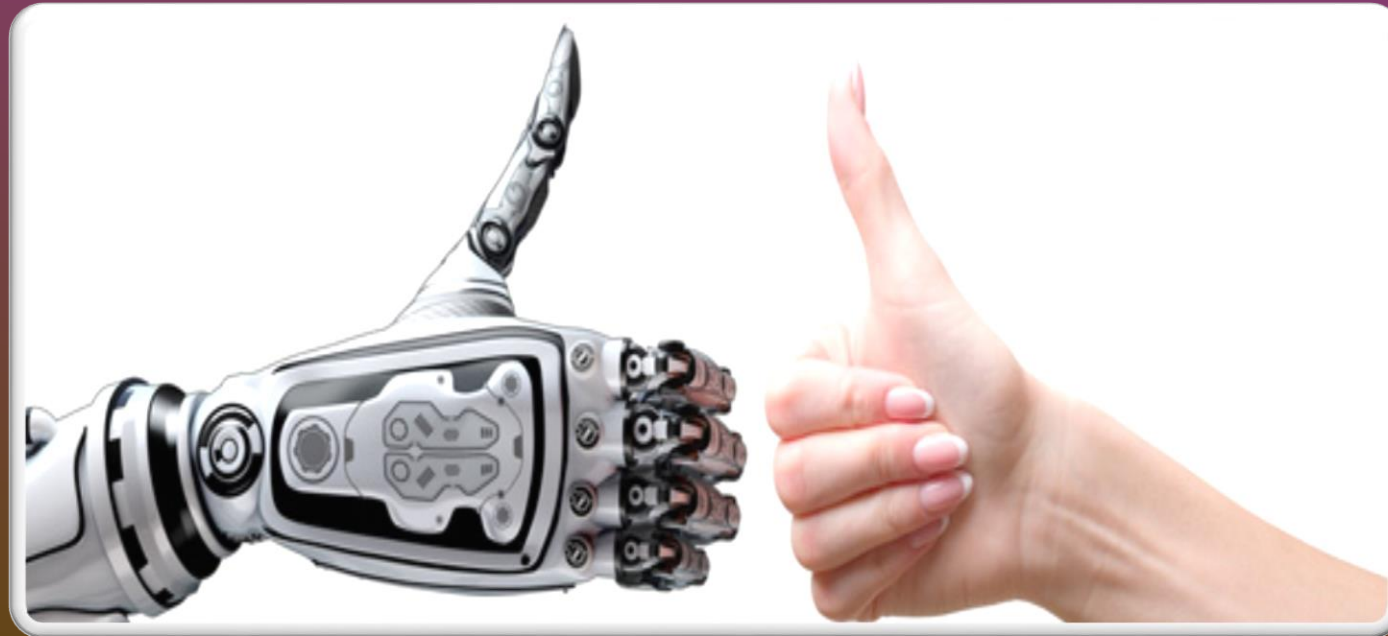


With the rapid development and proliferation of microcomputer and software technologies, automation in manufacturing is almost totally dependent on the capabilities of computers and software to automate, optimize and integrate the various components of the manufacturing system. Due to this dependence, automation in manufacturing is called computer integrated manufacturing.

- ▶ Although industrial automation in manufacturing is not without its detractors (such as an unsubstantiated claim that it will lead to mass unemployment), its future looks very bright. Industrial robots of the future will be multi-functional so that the same machine can be put to several different uses. They will have many capabilities associated with human workers, such as the ability to make decisions and to work autonomously. They will also have self-diagnostic and predictive maintenance capabilities.



- ▶ Thanks to industrial automation of manufacturing, the factory of the future will be more efficient in the utilization of energy, raw material and human resources. Also, contrary to popular belief, the experience so far has shown that automation will not cause mass unemployment. On the contrary, the mass use of robots will create more jobs. Humans and robots will work together to create a more efficient and productive workspace.



THANK YOU FOR YOUR ATTENTION!

