1. Describe Technology

The Future of employment, jobs, and work through automation of Industrial Robots.

Industrial robot is a robotic arm that is programmed and automated to perform specific tasks that are hard, dangerous, or too repetitive for humans. The robot has sensors, controllers and actuators that assist it on carrying out operations. There are four main components that make up the industrial robot. These components are manipulator, controller, end effector and teach pendant. Manipulator is the arm that moves and rotates on various axis. Controller is the computer system that connects to the robotic arm to control its movement, rotation, and effector functions. End-effector is the device that is attached to robot’s wrist which allows it to interact with the given task. These interactions include welding, handling, packaging, picking, placing, dispensing, and cutting. The Teach Pendant is the device used to program industrial robots’ movement, rotation, and end effector function.

<https://education.vex.com/stemlabs/workcell/stemlab/industrial-robotics/what-are-industrial-robots?lng=en>

<https://www.youtube.com/watch?v=Cndodc3X50s>

<https://www.iqsdirectory.com/articles/automation-equipment/industrial-robots.html>

<https://www.automate.org/news/what-is-an-end-effector-and-how-do-you-use-one>

<https://robotsdoneright.com/Articles/robotic-controller.html>

1. Implications for society

The Future of employment, jobs, and work through automation of Industrial Robots.

Financial implications [Positive and negative]

Industrial robots help increase productivity and efficiency while lowering the production costs. The robots are automated to do repetitive tasks like assembling automotive or electronics industry. This process is both tiring and very repetitive for people but not the machines.

“Within the United States, industrial robot installation increased at 10.28% compound annual growth rate in the past decade, from 15,170 in 2008 to 40,373 in 2018.”

“According to economic research analyst Kara Mazachek, it was found that parts of the industry with easily automated labor and financial resources have the most robots. These industries include automotive, transportation, metal and wood manufacturing industries.”

“Largest productivity gains were seen in industries where companies were in early stages of adopting robots. These industries saw 5.1 increase in productivity with an increase in industrial robot density of one percent”

“Adopting industrial robots has led to growth in productivity. Among all industries, a one percent increase in quantity correlated with an increase in productivity of 0.8 percent.”

<https://blog.trade.gov/2020/12/22/robots-and-the-economy-the-role-of-automation-in-productivity-growth/>

##### **“Effect of Covid 19 on Robotics Market**

The covid-19 effect is expected to increase the scale of the Industrial [Robotics](https://www.analyticsinsight.net/know-top-robotics-college-courses-to-take-up-in-india-in-2022/) Market from US$45 billion in 2020 to US$119 billion by 2030. Over the projected period of 2020 to 2030, it is expected to grow at a CAGR of 15%. The 2025 forecast is predicted to be roughly 3% lower than the pre-COVID-19 prediction. The key driving drivers for the business are a lack of qualified labor and government and public-private partnerships presenting suggestions to mitigate the negative consequences of COVID-19.”

<https://www.analyticsinsight.net/the-future-of-industrial-robotics-market/>

* Enables companies to increase their competitiveness through faster product development.
* Provide better production quality and more precise and reliable processes.
* Increased speed for manufacturing while operating around the clock.
* Cost of having person handle manufacturing operations is more expensive than robot.
* Require large investment, includes cost of industrial robots, installation, and configuration.

Work faster than humans

Lower Production costs

Great return on investment

Social [Positive and negative]

Health and Safety