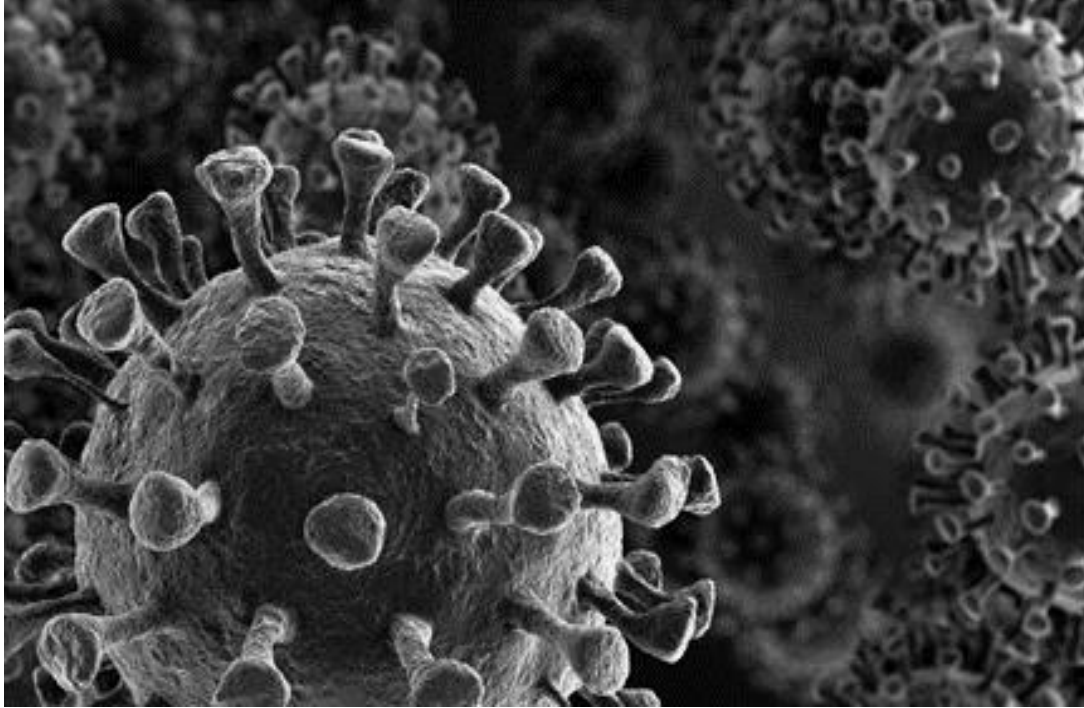


A white robotic arm with a glowing green circular light on its wrist is shaking hands with a human worker in a dark industrial setting. The background is dark and out of focus, showing some industrial equipment. The image is framed by dark red diagonal shapes in the top-left and bottom-right corners.

COLLABORATIVE ROBOTS FOR THE PANDEMIC PROOF NEW SOCIETY IN AUTOMOTIVE MANUFACTURING

COVID-19 Pandemic -Background



- The COVID-19 pandemic, also known as the coronavirus pandemic, is an ongoing pandemic of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)
- It was first identified in December 2019 in Wuhan, China
- As of 18 March 2021, more than 121 million cases have been confirmed, with more than 2.68 million deaths attributed to COVID-19, making it one of the deadliest pandemics in history.

Operation During Pandemic

As the COVID-19 virus has spread around the globe, concern on the livelihood of the humankind has been a major issue of the globe nowadays. The pandemic caused the largest global recession in history, with more than a third of the global population at the time being placed on lockdown

Here in Malaysia, essential businesses are allowed to operate but only with adherence of strict Standard Operating Procedures (SOP) :

1

SOCIAL DISTANCING

At least 1 meter apart from the nearest co-worker

2

LIMITATION OF CONTACT

Always limit contact with others and always use sanitizer/wash hands after touching things

3

TEMPERATURE SCREENING

Employees must scan their body temperature upon entering work premise

4

FACE MASK

It is mandatory to wear face mask during working hours

As the government has imposed strict SOP and the implementation of Work From Home (WFH) to lessen the crowd in the workplace, we found out COBOT is one of the solutions during this pandemic.

What is COBOT

- A COBOT, or collaborative robot is a robot intended for direct human-robot interaction within shared space
- Human and robots can be in proximity without safety fencing
- Contrast with Industrial Robot (IR) applications which robots are isolated from human contact
- COBOT safety may rely on lightweight construction materials, rounded edges, inherent limitation of speed & sensors and sensors & software that ensure safe behavior
- And because of their small footprint and easy mobility, automotive manufacturers continue to find new applications for COBOT platforms



COBOT Advantages

**FAST AND EASY
PROGRAMMING**



**SAVE TIME ON
INSTALLATION**



**BETTER SPACE
UTILIZATION**



**BETTER COBOT
HUMAN
INTERACTION**



**SAFER WORK
ENVIRONMENT**



COBOT Application in Automotive Industry

01 Assembly

COBOT can handle repetitive tasks on the production line, such as attaching door handles and windshield wipers, which frees human workers to focus on higher value tasks

03 Welding

Welding is another dangerous and time-consuming task that is ideally suited to COBOT. COBOT can handle Arc, TIG, laser, MIG, ultrasonic, plasma, and spot welding, as well as soldering and brazing.

05 Material Removal & Polishing Robot

Like many tasks in car manufacturing, the tasks are repetitive and sometimes dangerous, creating an ideal opportunity for robotic intervention. Material removal tasks include grinding, deburring, milling, sanding, routing and drilling.

02 Painting

COBOT provide consistent painting performance and round the clock availability that no human worker can match. Furthermore, automotive paint is toxic, which poses a major risk to human workers

04 Machine Tending

Machine tending is one of those tasks that's ideally suited to collaborative robot-powered automation. Dull, often dirty and sometimes dangerous, it's no surprise that over recent years machine tending has emerged as one of the most popular applications for COBOT

06 Quality Inspection

Quality inspection process can make the difference between successful production runs and expensive, labor-intensive failures. COBOT are used by the automotive industry to ensure product quality.



How COBOT Helps During Pandemic?

No. 2. Contactless Production

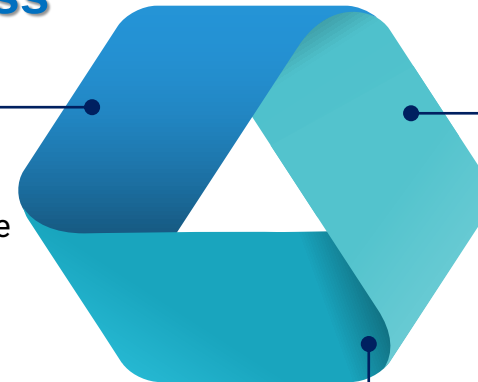
COBOT can reduced engagement of human at the production line thus reduce the risk of virus transmission

No. 3. Space Utilization

COBOT can easily fitted between workers production line which have less required space if compared with industrial robot.

No. 1. Social Distancing

With implementation of COBOT on the manufacturing/production line, no. of workers can be reduced thus more space for social distancing





COBOT for Assembly Application

- COBOT perform an important role in many car factories, including assembly. COBOT can handle repetitive tasks on the production line, such as attaching door handles and windshield wipers, which frees human workers to focus on higher value tasks. COBOT with higher payloads, are able to handle larger, bulkier items such as wheels, hatches, and engine hoods.
- The Lear Corporation uses flexible, lightweight UR5 COBOT to assist with assembling car seats. The UR5 has a small foot print ($\varnothing$ 149 mm), enabling it to work in tight spaces, where it can perform tasks such as helping to assemble automotive seats and rest frames. At Lear, the UR5 completes a screw driving action 8,500 times per day, which has optimized the company's production time. Lear deployed its first UR COBOT in 2017 –today the company has 38 UR robots in its Chinese production plant where they are used to perform car seat screw tightening, electrical inspection, pick & place and other important processes.

COBOT for Machine Tending Application



- Machine tending is one of those tasks that's ideally suited to collaborative robot-powered automation. Dull, often dirty and sometimes dangerous, it's no surprise that over recent years machine tending has emerged as one of the most popular applications for COBOT.
- India's Bajaj Auto is one of the world's largest motorcycle manufacturers and was the first company in India to deploy COBOT. Since then, Bajaj Auto has deployed 100 COBOTS in its production facilities to assist human workers with machine tending and assembly tasks. This company sought to improve the standardization of their two-wheeler vehicles and increase the speed of production.

Conclusion

- Pandemic Covid-19 has shown to us that human need to adapt new norm and lifestyle
- Physical distancing is one the vital methods to stop and prevent the virus from spreading vastly and infect other human being
- As the economy need to roll, manufacturing especially in automotive sector for this context, still need to operate even though in this pandemic era
- Physical distancing in other way reflects less human workforce, resulting delay in final product fulfillment
- Implementation of COBOT will help production to be achieved as usual as the productivity will remain o the same or better plus COBOT proven pandemic proof



Thank You

