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The Future Role of Robots in Society

CI453 Working in the Computing Industry

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# Introduction:

Robots were first introduced in the manufacturing industry in the 1960s. (*Alex Misiti, August 14th 2020*). They were used for heavy lifting and were very limited in what they could be programmed to do. Since then, they have continued to aid the manufacturing industry and even branch off to other industries. Where can we expect to see robots in the future? This report discusses how robots aid us now and their place in society in the future.

# Robots in current times:

## Articulated robots:

One of the most common types of robot is the articulated robot. It consists of multiple rotary joints for it to resemble a human arm. The main advantage of this structure is it can cover a large area without taking up much space. One disadvantage is how complicated it can be to program. These robots are used for food packaging; welding; automotive assembling and steel cutting.

## Cartesian robots:

Cartesian robots are also known as rectilinear or gantry robots. They are a rectangular shape and operate in three dimensions (X, Y, Z). A common example of a cartesian robot is a 3D printer. Some advantages include easy to program, highly accurate and simple to use. However, the disadvantages include: being unidirectional therefore can take a lot of time to perform a task; can take up a lot of room if designed for bigger projects; and can be very complicated to assemble.

## SCARA robots:

SCARA (Selective Compliance Assembly Robot Arm). These robots are primarily used for assembly applications. They have two parallel joints which allow for excellent horizontal movement. They are faster than both cylindrical and cartesian robots. This robot is very fast and works great when used for repeating tasks. Some drawbacks relate to its horizontal expertise, it can only be used in one plane therefore won’t work properly if the surface isn’t flat. It also is hard to program offline.

## Cylindrical robots:

These robots are very basic. They consist of a rotary joint and an extendable arm. As the name suggests they work in a cylindrical motion. It is used for simple tasks which include picking an item up, rotating it and putting it back down. Advantages include: simple to install and operate; very fast; great for repeating tasks, and minimal floor space required. Drawbacks to using this robot are that it is relatively inaccurate. It can’t be precise with its movements unlike other robots (*Technavio blog August 31st 2018*)

## How robots have benefitted humans:

These are the robots that can be commonly found today. Primarily used for assembly in the manufacturing industry. This allows for a higher degree of precision compared to humans. This also reduces the number of errors and risk involved. They don’t require lunch breaks or toilet breaks and aren’t paid a salary. They can’t be late to work or take days off because of sickness.

# Robots and their future:

## Recent robotic advancements:

A robot called ‘Pepper’. Pepper has multi-directional microphones to assess the tone of a person’s voice and can respond accordingly in order to respect how the person is feeling (*ECPI University blog*). Another example would be ‘Paro’. Paro is a therapeutic robot designed to reduce the stress level of a person and calm them down. It appears to be a baby harp seal, which is linked to animal therapy and can therefore have a greater impact on a person. Contrasting to the mental emotional side of robots, advancements have been made in the physical side. Thalmic labs have created a bionic kangaroo robot. It is bipedal and is controlled by an armband on the user. The robot can perform tricks and can even reposition itself on its own (*Bisma Farrukh, April 7th 2022*).

## Changing industries:

Relatively few industries have been affected aside from the manufacturing industry. However, this could all change very soon as some industries are already being affected. The healthcare industry could massively benefit from the use of robots (*WGU, September 10th 2021*). Their broad intelligence can be used to diagnose illness and disease in patients much earlier than doctors can. Robots can be programmed to be extremely precise; this would assist doctors with surgeries however some people may not approve of a robot operating on them. Although quite daunting, over time people will grow used to it and surgeries could be entirely performed by robots. Another industry that benefits from the use of robots is the agricultural industry (*Cyberweld, May 26th 2022*). Robots can be used for almost every aspect of farming, some examples include:

* Crop seeding
* Packing produce
* Crop maintenance
* Livestock applications

Most tasks performed in agriculture are very repetitive and time-consuming for the farmers. Therefore, robots are perfect for the role. They can be quick and efficient whilst simultaneously being precise and accurate. Multiple robots can be used at one moment in time.

# Ethical arguments:

## Economical change:

What would happen when robots replace humans with everyday jobs? (*peoplebank* blog) In the future, part-time jobs may be completely run by A.I. This would affect a lot of people. How will they earn an income? Will more people then be put on benefits? These are a few of the worries that come with the implementation of robots in certain industries. We could reach a point in the future where 90% of jobs are performed by robots.

## Robotic takeover:

A very common worry with the introduction of robots is will they advance and treat humans as inferior? This ties in with the question Do robots have a consciousness? Can they learn from humans and essentially replicate people? Many people ask these questions and fear the introduction of robots.

## Robots outside of the workplace:

Another wonder with the advancements in robotics is, Will robots be treated as humans? There will undoubtedly be people who don’t approve of robots being introduced as human alternatives. There also will be people who will want to have relationships with robots. Will human – robot marriage be possible?

# Conclusion:

In the near future, the role of robots in society won’t change much compared to what we have now. There are many questions that need to be answered before people will be comfortable enough for robots to be introduced in more common circumstances. I do believe they will continue to develop and improve robotics to aid humans without any hesitation. However, robots that are designed to essentially live like humans may need more time to be accepted by society.

# References

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