**Manufacture of Robots**

Robots are an ingenious piece of technology, simple basics pieces of machinery combined with one another to build something that is capable of taking commands given to them, generally as lines of code, or in modern days verbal commands, and completing the tasks given to them, like robots found within factories that are made repeat the same task over and over hundreds or thousands of times. These robots however, all share the same basic ideas in how they’re manufactured.

When robots had only started to be made, they had generally been designed to be for a singular purpose, like welding multiple pieces of metal together in quick succession or moving an item from one place to another. With this the robots were built with this particular task in mind, it was how they decided between a large and heavy frame for robots that may be used for an assembly line, or a smaller lighter material an frame for a more mobile robot like a drone.

Though the frame for the robot is important without its electrical components the robot itself is practically useless, like the frame the electrical component within were chosen based on the its purpose, like a robotic arm would need actuators, which acted as the “muscles” that allowed it bend like a human arm would. It would also need the ability to grab or manipulate something, generally there two types of grips, vacuum grips which are a very simple and effective given the object to be gripped has a smooth surface, such as a large glass pane. The other type of grip, is mechanical, this is the more common grip of the two, and it refers to a claw or hand like part of the machine that can either encompass the desired object cradling it using little friction, or like a set of jaws holding an object using a large amount of force and friction.

The last part of manufacturing a robot is programming the desired function, this is where we tell the robot to something, such as take the right amount of power to complete its task. This is by far the most important section when building a robot, a robot could be well designed and built from the best materials available but if the programming code is badly written then the entire robot won’t work very well, if it works at all. There are three types of robotic programming, remote control, artificial intelligence and hybrid. Remote control is a set of preprogramed rules or commands it can perform when it gets a signal from its control. Artificial intelligence allows the robot to interact without a control but instead determines how they react to the encounter using pre-existing code. The last type hybrid uses both artificial intelligence and remote-control functions.

As technology developed people realised that robots could be designed in a better fashion allowing for them to be more adaptable and have several working functions. Also, as new technologies began to come to light people started to design and build even more complex robots and machines, some that may one day become sentient.

**The History of robotics**

The ideas of robots or similar machines can be found relating back as far as medieval times. People of the time did not have the word robot to define such ideas and creations, but they still were thinking of machines that could perform the same tasks as they did. However, in medieval times these automatons were more often used to impress peasants of the church to believe in a higher power. Most were fooled since the technology was practically non-existent in the 13th century. (Wikipedia 2007) Later in the 18th century, smaller robots became very popular as toys for the rich, as they were designed to look and move like small creatures or people.

The word “robot” had first originated from the Czech word “robota” which when translated means ‘forced labour’, the new word was then cemented in Karl Capek’s playwright R.U.R (‘Rossum’s Universal Robots’) in the 1920’s. (Coiffet and Chirouze, 2012) Capek’s use of the word “robot” referred to humanoid machines that had been created to work on assembly lines within factories, that then later turn on their human creators. (Capek K, 2004)

The word “robotics” had in later years also been coined by the now famous Russian-born American science-fiction writer Isaac Asimov, in a short story he wrote called “Liar!” in the 1940’s. Asimov’s fame is due to his introduction to the three “Laws of Robotics”, which had made their first appearance within another of his short stories “Runaround”. The robots from Asimov’s stories were generally been described as helpful servants to humanity and were “a better, cleaner race.” A by far more optimistic view of a robot’s capabilities and uses when compared to Capek’s story’s view.

**Law One of Robotics**   
“A robot may not injure a human being or, through inaction, allow a human being to come to harm.”

**Law Two of Robotics**  
“A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.”

**Law Three of Robotics**   
“A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.”

(Anderson and Leigh Anderson, 2011)

Some of the earliest robots by which most people would define them would be “Elmer and Elsie”, built by William Grey Walter a British robotics pioneer in the 1940’s, two “tortoise-like robots” that were designed so when their power was low they would return to their charging docks. (Bellis 2019)

In the 1950’s an inventor by the name George C. Devol, created “Unimate”, known as the first industrial robot, ever built. (Nocks 2007) The “Unimate” was a hydraulic arm that could be programmed and made to do repetitive tasks. Devol then spent the next 10 years trying to sell the “Unimate” to industries, only to fail in the beginning before eventually passing the design onto an engineer, Joseph Engleberger also known as “the Father of Robotics”, who was able to alter the design and built a company to make and sell the robots. (Nocks 2007)

Reference List:

(Coiffet, P. and Chirouze, M. (2012)

*An Introduction to Robot Technology.*

(Capek K (2004))

*R.U.R. (Rossum’s Universal Robots). Penguin Group, New York.*

(Anderson, M. and Leigh Anderson. S (2011))

*Machine Ethics, Cambridge University.*

(Bellis M. (2019))

*Who Pioneered Robotics?*

Available: [*https://www.thoughtco.com/timeline-of-robots-1992363*](https://www.thoughtco.com/timeline-of-robots-1992363)

[accessed 04 May 2020]

(Nocks L. (2007))

*The Robot: The Life Story of a Technology.*

Wikipedia (2007)

*History of Robots,* available: https://en.wikipedia.org/wiki/History\_of\_robots

[accesses 04 May 2020, 17:37].