Robots are ever evolving and not limited to size, capability or design which makes them hard to define. Many experts will debate the term “robot” as it can encompass simple contraptions, such as thermostats, to much larger projects, such as Atlas built by Boston Dynamics. There are many discrepancies between the true definition. It is best summarised as to whether it is sensing, analysing/ computing and acting. All robots will be fitted with a type of sensor in which it takes a reading from. From that reading it will analyse and compute the best course of action for its purpose. Finally taking that data the robot will act on it, in the case of a thermostat it may lower the heating. The state-of-the-art technology at the moment would be robots such as Atlas from Boston Dynamics. They have engineered a humanoid robot that can dance, jump and carry things. This is all possible with the use of many sensors around the robot. Atlas uses these sensors to then calculate how to balance or which step to take next. All things that the human body does instinctually. However, because Atlas is a robot and is able to calculate things much more accurately than a human. Many things are possible with current technology. Most robots are found in factories, replacing repetitive jobs of their human counter-part. Car manufacturers were some of the first places to incorporate such robots. They do a singular task on an assembly line to build a finished product. Humans are still required to watch and make sure that nothing goes wrong, but for the most part these robots are autonomous. The benefit for the uses of these robots is that there is less of a chance for human error with products, fatigue or accidents. Removing humans from these environments, although it lowers the employment rates in these factories, it improves efficiency and product quality. Other robots have more autonomy, like self-driving cars or the mars rover. The mars rover was partially controlled by humans but the parts that worked off of autonomy would collect samples and data. Sending that information back to Earth. It would have made countless calculation far faster than any human could. Having travelled so far as well it gave us invaluable information about space. Roombas or automated vacuum cleaners are a small simple example of a robot. It is capable of sensing its surroundings and avoids obstacles. Some models are even capable of sensing the difference between carpet and hardwood. In the future a lot of companies are looking to create robots that can cook and clean for people. Models are being worked on currently and are capable of a set few menu items. However, the current models are too dangerous and expensive to sell to people. Creating better robots for future space and ocean exploration as well. Space and the ocean have very similar requirements for their robots. They need to be able to survive the conditions, collect samples, pictures and relay them back to their human controller. They would be well equipped with many sensors to help navigation and the ability to correct its own position if it is stuck. The technological advances that are necessary to make these advancements are mostly mechanical. Things like battery capacity, have been a long running problem with all devices that aren’t plugged into a wall. Finding something capable of holding more energy that takes up the least amount of space with a decent half-life. Developing AI systems that can learn faster and are able to compute more things unassisted by humans. All of these developments are crucial to further our technological advancements.

What is the likely impact? (300 words) What is the potential impact of this development? What is likely to change? Which people will be most affected and how? Will this create, replace or make redundant any current jobs or technologies?

The impact of robot development could potentially pose many negative outcomes as well as positive. Robots have almost endless potential to the functionality on various aspects of life. Robots will majorly change the job market, replacing jobs that robots could do more effectively than its human counterpart. We have seen this progression happen recently with the development of robots and technology. Around 1.7 million manufacturing jobs have been replaced by robots since 2000. This is predicted to sky rocket to around 20 million by 2030. This does however mean that production in manufacturing industries will become more efficient and effective as well as lowing the cost of production significantly due to the wages of employees being completely removed. The people that will majorly be affected by this development will be lower income regions as most people in those regions work in lower skilled occupations. Although this will affect many people negatively and increase unemployment significantly, there are many people that could potentially benefit from this. Big businesses will benefit from the development of robotics as it will help cut cost and will make production way more effective which can potentially help produce and sell more products. Another party that would benefit is the IT industry, especially in robotics. The job market in the IT industry will expand as well as innovation. Robotics could also affect other aspects of daily life as well through doing tasks that us humans do in everyday life. For example, more effective robotics for household cleaning could be developed meaning that humans will no longer have to do cleaning tasks. Robotics have endless possibilities and could potentially replace more than just manufacturing. Robots could be made to replace tasks in our daily life in jobs that we would rather not do. Technology in general has made things more accessible and easy but potentially making people become more lazy.

Autonomous machines have taken up many labour jobs. However, in my current employment I work with robotic arms that move molten glass to create glass discs. We also have robots that move those glass disc samples into an x-ray machine. From which it processes the minerals present in the glass. All of this was previously done manually, and still is for very special samples, but has cut down analysis time and potential risks on employees. Directly, very little has affected me with the introduction of robots in the assembly line industry but it definitely has made my job easier. I am less likely to get into accidents or burn myself handling something over 100 degrees. Indirectly, however, there have been cheaper prices for mass produced goods. This is due to the fact that these products no longer require a human to be paid per hour, and robots do not require sleep to function so factories are able to run through the night at the same capacity. With the lowering of price however there is a cost in quality as most assembly line robots do not possess the same problem-solving skills as a human worker. This can lead to inferior products which can be quite frustrating as a consumer. It is very easy to get sucked into buying a cheaper but lower quality product which I often find myself doing. I think with the advancements in technology there is a potential for me to lose my current job. However, with the rate that the current analysis machines break down and require technicians to fix I do not think I am in any particular jeopardy yet. For my family I also do not think that the move to fully automate production lines will affect them in any way they would notice. As my family work in sectors that require a high emotional quotient they will not be affected in their daily jobs. I believe the only things that it will affect is the amount of money spend on products.

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