**IT Technologies – Augmented Reality**

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**What does it do? (600 words) What is the state of the art of this new technology? What can be done now? What is likely to be able to do be done soon (say in the next 3 years)? What technological or other developments make this possible?**

Augmented Reality is a technology that shapes the way people perceive their world. Slowly picking up more and more popularity over the years, AR is excitingly showing us how far we can take certain technologies in the distant future. The term was first introduced by a researcher of the name Tom Caudell in 1990. However, due to our current technological restraints, developers have been struggling to produce a device that brings forth any obvious benefit to our lives. Currently, AR can be achieved through either a headset or a camera. An example this is the infamous “Google Glass,” which was one of the first real worlds looks of what the tech community is trying to achieve with this technology. Released in 2013, this device was able to place visual illustrations over what the user was currently looking at, to add an extra level of depth to their perception of reality. This device was able to show notifications and widgets in front of your eyes which overlayed any surfaces you would be looking at. It’s biggest constraint at this current time is microcomputing. Glasses and/or headsets are small and thus need to be able to hold a lot of computing power in a very confined amount of space.

Fast forward to the present day, we have now been exposed to more aspects of what can be achieved with this technology. Some use cases for AR include medical training, design, modelling, education and more. Companies such as Apple and Google have released smartphones with AR capabilities built into their cameras. We can now visibly see fake objects through our cameras and into the empty space in our rooms. This allows us to do things such as being able to see and play a war game on the study desk, take measurements with a virtual ruler, place furniture in a room before making a purchasing decision and more. This is done through the cameras ability to track how far all the real-world objects are to the camera with mathematical formulas that can then determine how the Augmented objects should look. As of now, it still seems to feel like we’re still in the beta testing stages of this technology as there are a lot of common issues that occur. One being that augmented objects don’t look natural to the human eye as the tracking on our camera’s is far from perfect. This greatly handicaps its use cases and it currently doesn’t offer many benefits in these fields. However, it is hopeful that soon, we will be able to accomplish a lot more with AR, and even further into the distant future, this technology may be used with all of these use cases.

Apple is one company that is investing a lot of time into this as shown with their latest lidar sensor. This sensor can track the light bouncing off objects that it’s looking at, making a detailed map of what the surrounding area looks like. Over time, with improvements made with lidar, cameras and optimisation of hardware and software, it’ll be commonplace seeing genuine use cases coming out of these AR ready devices within the next few generations of hardware. In terms of headsets, the idea is that we are heading towards the direction in which we will be able to have fully-fledged computers sitting on our heads. This means we will be able to use a virtual operating system without the need for a computer monitor, desktop or laptop. This technology can eventually replace all T.V panels, smartphones, car navigation systems, etc. As of now, this is accomplished through mini projectors displaying a tiny screen to the glass on the headsets themselves. This acts as a see-through monitor and with camera tracking it’s able to properly navigate the objects around the area. An example of a real-world use for one of these devices in the future is that we will be able to look up at the road while we are driving, then your AR equipped device will be able to show objects in front of you that give you directions. This can be done by either showing a big arrow in front of your eyes telling the user where to go, by text or even by colouring in the ground of the road highlighting the route to keep track on.

**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?**

Augmented Reality has the potential to impact both the world of technology and society. As soon as the hardware requirements are met, the possibilities of what this technology can do are endless. One of the predictable future impacts includes no longer needing any device that has a screen on it. Mobile phones, T. V’s, projectors and can even extend to electronic banner advertisements. This may greatly impact all manufacturers in these fields as they can all be potentially replaced by one device

Modern society as a whole may be affected by this technology. Currently, most people own a smart phone, and over time this technology will soon be replaced by another. If AR is this next development, then we will observe what we are already currently observing with our behaviour towards these devices today. We will all be affected as eventually our phones are going to break and become redundant and thus, we may be purchasing new AR devices instead.

This technology is able to create job as it will create a higher demand for software engineers. This includes app developers as there will need to be an AR version of every popular app on the app store, google play store, windows store and any other app stores. The demand will stem from the need to improve the quality these products in that they need to be better optimised for the user and for the hardware it’s running on. Since this technology has the potential to be so functional and replace a lot of other various technologies, at which point it will be capable of making other jobs redundant. An example of this is that we may no longer need any T.V manufactures as it can just display a tv right Infront of us. However, the outcome may show it to not be as simple as that, however the possibilities of it both replacing and making jobs redundant is unquestionable.

**How will this affect you? (300 words) In your daily life, how will this affect you? What will be different for you? How might this affect members of your family or your friends?**

Augmented reality has true potential to change how I live my daily life. It may change the way I shop, spend money and even how I walk/drive to my destinations. For example, it’s possible for this technology to highlight a restaurant I'm looking at and show me its reviews/ratings hovering right next to it, thus determining my decision-making on where I’d like to eat. It can highlight the footpaths I need to walk down to get to my destination right before my eyes and even bring up web results of products I’m looking to buy, giving detailed information on household items, clothing etc. Right now, we’re seeing the first glimpses of what AR is capable of and overtime we will continue to see it affecting our lives more and more.

Within my lifetime, I theorise that I’ll slowly be becoming more and more affected by this technology. Many of my personal devices will be replaced by this, and I may even become less social with family members, friends and my community as having a device like that on you at all times, just like a smart phone, will more than definitely be distracting me from the real world. If that does become the case, then we will all be a little less connected with one another just as shown with people and their mobile phones today. If this technology does extend this notion of segregation, then this will affect everyone in the way we interact with each other. This may be able to affect us in such extreme ways as it’s possible nature of being a small device makes it extremely accessible to every human being.

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