Up and Coming Technologies

So far in this course, we have explored the most current and most important trends in the field of Information Technology. While we tried our best to cover as many topics as we can, we finally ran out of time. So now, as the final lesson of this course, we will discuss some of the other IT trends that are worth knowing about.

12_Obj01: Define Virtual Reality, Augmented Reality, Sharing Economy, 3D Printing
12_Obj02: Identify Virtual Reality Devices
12_Obj03: Identify the most popular sharing economy companies
12_Obj04: Create a report about up and coming technologies

Virtual Reality

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The Virtual Reality Society (https://www.vrs.org.uk) defines virtual reality or VR as "a three-dimensional, computer generated environment which can be explored and interacted with by a person"

We are used to interacting with computers through screens which have two dimensions; length and height. Virtual reality adds a third dimension which we can call width or depth, simulating an environment where the user look around in different directions instead of just staring at a screen.

VR Devices

This is made possible through VR devices, the most popular of which is the *virtual reality headset*. As the name implies, the VR headset is a head-mounted device that displays virtual reality to the user.

The VR headsets available in the market today connect to computers or other devices. For example, The HTC Vive and Oculus Rift work with PC's and the PlayStation VR works with the PlayStation 4. Other VR headsets such as the Samsung Gear and Google Cardboard which is literally made of cardboard attach to smart phones.

Other VR devices available today include handheld and wearable controllers which can be used to interact with VR environments while wearing a VR headset and omnidirectional treadmills which allow VR users to walk in all directions.

Augmented Reality

Augmented Reality or AR is a technology that superimposes digital information on the user's view of the real world. In simpler terms, AR adds computer generated information to what we see and hear.

Smartglasses

A Google Glass wearer.jpg, Author: Loïc Le Meur, Source: https://commons.wikimedia.org/wiki/File:A_Google_Glass_wearer.jpg Creative Commons Attribution 2.0 Generic license.

Today, the most promising application of AR is the smartglass which is a wearable device that adds information to what the wearer sees. Popular examples include Microsoft's HoloLens and Google Glass.

Smartphones

Augmented reality does not necessary require dedicated devices such as wearables and headsets. AR applications are already being widely used today in mobile devices such as smartphones. For example, Snapchat allows users to add "filters" such as dog ears and flower crowns to real time images captured by the phone's camera.

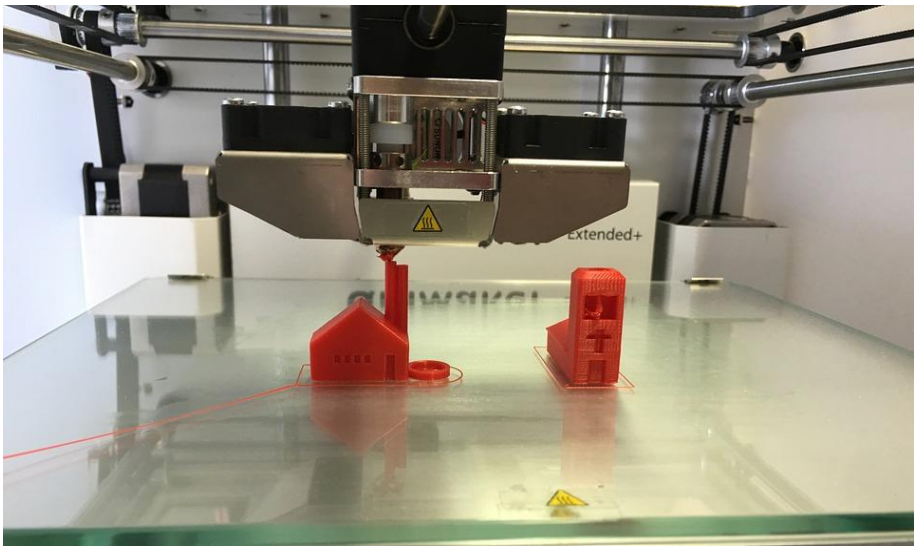
Screenshot from Pokemon Go Mobile App

Perhaps the most popular example of AR is Pokemon Go which became extremely popular in 2016. Players had to walk in the real world and catch Pokemon which can be seen through their phones' cameras.

Augmented Reality Vs. Virtual Reality

The terms augmented reality and virtual reality are often used interchangeably but there is a distinct difference between the two. VR blocks external sensory input. For example, a VR headset covers the user's eyes so he can't see anything other than the image projected to him. On the other hand, AR does not block the real world; it merely adds to it. The user will be able to see the world around him plus the digital image projected images.

3d Printing



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Three-dimensional printing or additive manufacturing is a computer-controlled process of creating three-dimensional objects.

How does it work?

Just like printing on paper, 3d printing starts with a computer. 3d modelling software are software application used to design digital representation of the objects to be printed. The most popular 3D modelling software include Blender, SketchUp, Fusion 360, and SolidWorks. 3d models are saved as files just like the text documents that we print on paper. Examples of these file types are OBJ, STL, AMF, and VRML.

The models can then be printed by a 3d printer. Popular brands include MakerBot, Ultimaker, Flashforge and Zortrax. 3d printers are still relatively expensive, with top-of-the-line brands costing more than 100 thousand pesos and low-end brands at around 30 thousand. However, just like any other consumer electronics, 3d printers are expected to become more affordable in the years to come.

Different types of materials can be used to print 3d objects. Commercial 3d printers commonly use the Fused Filament Fabrication process or FFF. This method works by printing thin layers of thermoplastic which is a plastic material that becomes moldable when hot and hardens when it cools down. Layers are printed on top of each other to form 3d objects. The most commonly used include Polylactic Acid (PLA), Acrylonitrile Butadiene Styrene (ABS), PolyAmide (PA), and High Impact Polystyrene (HIPS).

The Sharing Economy

The *on-demand economy* or *sharing economy* refers to economic and social activities where consumers gain immediate access to goods and services through online transactions.

The sharing economy is already changing the way people manage and consume resources. The traditional way of thinking is if we want to use or consume a resource, we need to purchase it. If we want to listen to music, we need to buy a record. If we want to conveniently travel, we need to buy a car. With the sharing economy, we can pay a relatively small amount to use other people's resources.

Information Technology is a vital part of the sharing economy. Virtually all transactions are conducted over the Internet. Mobile connectivity in the form of smart phones and wireless Internet is necessary in the fast paced on-demand flow of goods and services.

Here are some of the most popular sharing economy companies:

Uber

The American company Uber is a sharing economy pioneer. Uber provides on-demand transportation service by connecting commuters with private car drivers who are willing to give rides for a fee. According to Uber's official website:

"For the women and men who drive with Uber, our app represents a flexible new way to earn money. For cities, we help strengthen local

economies, improve access to transportation, and make streets safer. When you make transportation as reliable as running water, everyone benefits."

Airbnb

Another pioneer in the sharing economy is Airbnb. It allows people to rent short-term lodging in hotels, apartments, private homes, etc. According to their official website:

"Airbnb is a trusted community marketplace for people to list, discover, and book unique accommodations around the world — online or from a mobile phone or tablet."

Taskrabbit

Taskrabbit is an online labour marketplace that connects customers with freelance workers who do for everyday tasks such as plumbing, delivery, cleaning, yard work, etc.

Angkas

Angkas is one of the sharing economy companies that are gaining popularity in the Philippines. It works a lot like Uber but instead of cars, commuters ride motorcycles. The Angkas official website describes their service as "a professional on-demand motorcycle taxi service that allows commuters to safely and conveniently beat the traffic."

Glossary of Terms

VIRTUAL REALITY - a three-dimensional, computer generated environment which can be explored and interacted with by a person

AUGMENTED REALITY - a technology that superimposes digital information on the user's view of the real world

SHARING ECONOMY - refers to economic and social activities where consumers gain immediate access to goods and services through online transactions

3D PRINTING - Three-dimensional printing or additive manufacturing

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