# CART 360

# Prototyping for Physical and digital products

When producing a project, we must first create a prototype. Prototypes are built everyday for various reasons. Prototyping is a great way to understand the design and technical process of the project. It assists the creator at better understanding the potential problems. It also opens the blinds to project issues and feedback from testers. The benefits allows fabricators to test and transition their prototype into a better final output.

In this chapter, the author gives us four main reasons why we should all develop with the use of prototypes: to understand, to test and improve, to communicate and to advocate. With prototyping, we can understand and explore problems at an early stage. Prototypes can help people rethink the design or the technical aspect of the product. This process allows us to test out the user's experience. In addition, prototyping promotes team cooperation. This will allow members to be fully aligned with the final result. Lastly, the process of prototyping and user experience can give the team a good idea of things to improve on.

Prototyping for physical and digital products may consist of different fidelity levels. These fidelity levels are categorized by: low, mid and high.

The definition of low fidelity means that the prototype illustrates the core concept. It is used to catch potential problems but does not look similar to the final product. The cons of this level is that it is hard to test and may be limited in interactions.

Mid fidelity of a prototype gives the viewers an idea of how the final product will look. It is a good balance between cost and value. The interactions of this level may possibly be anything clickable, moveable, etc. This level of fidelity is to allow the user to test the functionality.

High fidelity prototypes are coded and physically made. At this level, many of the problems are already found and improved on. High fidelity prototyping represents the end goal. This level is best to test the overall user experience and the durability of the product.

In conclusion, prototyping is a great way to test your project. The materials which are used during the prototyping process should be similar to the final stage. The design and functionality can be increased from the first stages of prototypes, up until the final output. In the end, the better the prototype, the better the final product will be.

# Fashion with Function

Wearables are defined as small electronic devices implemented with sensors and may be worn either directly on the skin or above your clothing. For many years, wearables have been evolving in the aspect of health, fashion, music and much more. These wearables are becoming the next fastest growing market in technology.

The wearables market segment is divided into four categories: Sports & fitness trackers, health & medical sensors, smartwatches and smart glasses.
The Nike fuel and the Fitbit a good examples for a sports and fitness tracker which they tend to be in a form of a bracelet, a wristband, a body band or even a clip on accessory. These typically track down your heart rate, calories loss, distance of the exercises, hours of being awake and hours of being asleep. These trackers are usually the most popular ones since they are the most affordable and can cater to anyone.

The health and medical sensors can monitor our stress level, heart rate, dehydration, respiratory rate and much more. Spire Mindfulness is a clip on that can be clipped on a pair of pants or a bra. The purpose of the Spire is to track how your breathing is and how it changes your state of mind. This health tracker also reminds you to breathe and can help you reduce blood pressure, stress and increase your flow of endorphins.

Smartwatches are starting to be the next technology fashion trend. These wrist watches can be a fashionable item and offer functionalities. It can tell time, show you notifications, indicate your heart rate, calculate your motions and etc. Many of the fashion brands are trying to invest their time to develop a smart watch such as Michael Kors and Fossil. There are even collaborations with tech and fashion companies to work together to build a functional and trendy watch.

Spectacles by Snapchat and the Google Glasses are examples for the smart glasses category. These glasses function as displaying a computerized screen in the lenses or can interact with your electronic devices through bluetooth synchronization. VR and AR are also one of the most popular trend going around in the field of gaming.

These wearables are known for their user experience, the better the experience the more interest would be drawn to the product. The visibility, the role, the display on the device and the interaction model are all important factors to making a great wearable. These subjects can influence the user to dislike or feel uncomfortable if the design has not been prototyped on different people. To end, wearables must be designed properly to capture the society’s interest and must be tested several times to gather feedback in order to improve and make the best wearable.

# Embeddables : the Next Evolution of Wearable Tech

Wearables are already beginning to be a popular tech piece for the society. Wearables are seen as watches, glasses, belts and etc. Wearables can also be embedded into our skin and be hidden. Embeddables are defined as an extra small computer device which functions like a wearable but is simply just hidden and implanted into your body. Their purpose can be to tell you your heart rate or your health in general, allow access to certain doors, create an online connection and much more.

The history of embedabbles came from inking on our skins. Humans have been marking their skin with symbols to either identity themselves to a group or perhaps use this method to improve on their health. Many of us are scared of these embedabbles because it can start to make us question about our dependence on technology. The main goals and purposes of these future wearables are to allow users to transition to a user interface with no screens and allow the device to access your physical self. An user interface with no screens are called Zero UI. The invisibility of a screen can offer someone to act naturally with their gestures and still be able to communicate with one another.

In order for these embeddables to function and be the next trend, they would have to be discrete and as painless as possible. We can compare them to piercing our ears or getting a vaccine. For people to accept and agree for these embeddables, the device must not demonstrate any wrongful behaviour and cause any harm to the human body.

Embeddables may and could be a life changing experience in our lives. One life changing decision has helped a paralyzed man to move his fingers and his hands because some American researchers implanted a microchip sensor into his brain. The microchip sensor was able to send signals from his brain and exchange messages to a sleeve that enabled him from moving. As scary as a microchip being implanted into our body parts, it could really offer a potential improvement to our lives.

To conclude, embeddables can be a great way to improve how we live. It can help many people to enhance their lives and create endless possibilities. With these endless possibilities, our body might potentially be hackable and there will be privacy concerns. How will these companies ensure people’s security?

# Designing Human Robot Relationships

Robots have been working along with humans for quite a while now. Robots may only be able to collaborate and interact with humans if the robot is designed for a specific purpose. When designing a robot, it is important to think about the aspects such as safety, communication and responsiveness. After being programmed properly to do its tasks, they would be working side by side with patients, policemen, firemen, farmers while being introduced in various environments. The relationship between humans and robots is interdependent because we rely on them to help out for every day task.The intelligence of a machine will never have the same ability of emotions as a human being.

Nowadays, many jobs are replaced by robots because machines are programmed to do as we say. Replacing humans with robots for workplaces are a new way of experiencing and interacting with them. There are disadvantages and advantages by doing so. In order for the robot to execute the right work actions, it must be designed safely and understand it's environment. As time goes, robots do grow up and evolve. The hardware and software allows one robot to evolve and be improved on. It is with the software updates that allows people to have a better interaction with the machines. Robots are still dependent on humans to interact with others since it requires the input of the user to make the right decisions and actions. The goal is to create the robot, introduce it to the proper environment, receive feedback from the users and update the robot's hardware and software.

The authors explains how the ability of executing a task for robots are defined as repetitive. They are programmed to complete a task while restarting and never feeling tired. The machine's actions are still very much limited because it only does what the designer programs it to do and needs to be trained with instructions. The future for the development of these machines would be to enable them from understanding human behaviours, start to make decisions and comprehend reasoning.

Robots capabilities and performances are greatly appreciated since it collaborates and helps us with our daily tasks. If machines are able to be programmed and replace humans, would the human interaction with each other come to an end?