INPUT AND OUTPUT

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Introduction

- Input and output (I/O) is the communication between an information processing system, such as a computer and the outside world, possibly a human or another information processing system.
- Inputs are the signals or data received by the system and outputs are the signals or data sent from it.
- They mainly cover devices like mouse, keyboard, printer, speaker, joystick and light pen which can be used with a computer.

DESIGN THINKING

- Design Thinking is a design methodology that provides a solution-based approach to solving problems.
- For the innovator, the design thinking approach looks to minimize the uncertainty and risk of innovation by using collective intelligence through a series of lenses to grow their understanding of customer needs.
- By also engaging with customers or users actively throughout the process using a series of prototypes to learn, test and refine concepts, we end up far closer to customer understanding through this dialoguing, exchanging and growing intimacy to help uncover their needs.

DESIGN THINKING

- Empathize
  - In order to create desirable products and services, we need to understand who our users are and what they need.
  - During the empathize phase, we will spend time observing and engaging with real users conducting interviews, seeing how they interact with an existing product, and generally paying attention to facial expressions and body language.
- Define
  - We must gather all of the findings from the empathize phase and start piecing them together
  - This is where we will analyse our observations and synthesise them in order to define the core problems that have identified up to this point.

- Ideate
  - With this solid background, we can start to "think outside the box" to identify new solutions to the problem statement we created, and we can start to look for alternative ways of viewing the problem.
  - Brainstorm are typically used to stimulate free thinking and to expand the problem space.
  - As we prepare to move on to the next phase, we will narrow it down to a few ideas which we will later turn into prototypes to be tested on real users.

- Prototype
  - We will produce a number of inexpensive, scaled down versions of the product or specific features found within the product, so they can investigate the problem solutions generated in the previous stage.
  - The aim of the prototyping stage is to turn our ideas into something tangible which can be tested on real users.
  - This is crucial in maintaining a user-centric approach, allowing us to gather feedback before we go ahead and develop the whole product.
- Testing
  - During the testing phase, we must observe our target as they interact with our prototype.
  - The testing phase will quickly highlight any design flaws that need to be addressed. Based on what we learn through user testing, we must go back and make improvements.

- Empathize
  - We had interview Jared and Manfelt
- Define
  - The input device to move the cursor and output device to produce sound
- Ideate
  - Light pen, joystick
- Prototype
  - Input - ping pong ball, cardboard, straw
  - Output - cardboard
- Testing
  - Diaphragm of the speaker is easily broken, we added a metal network
  - Volume can not be changed, we added alternating resistor

INPUT

What is input?

- Any data or instructions used by a computer
- Input devices translate data into a form that the system unit can process
- Some hardware input devices include:
  - Keyboards
  - Mice
  - Pointing
  - Scanning
  - Image capturing
  - Audio-input

MOUSE

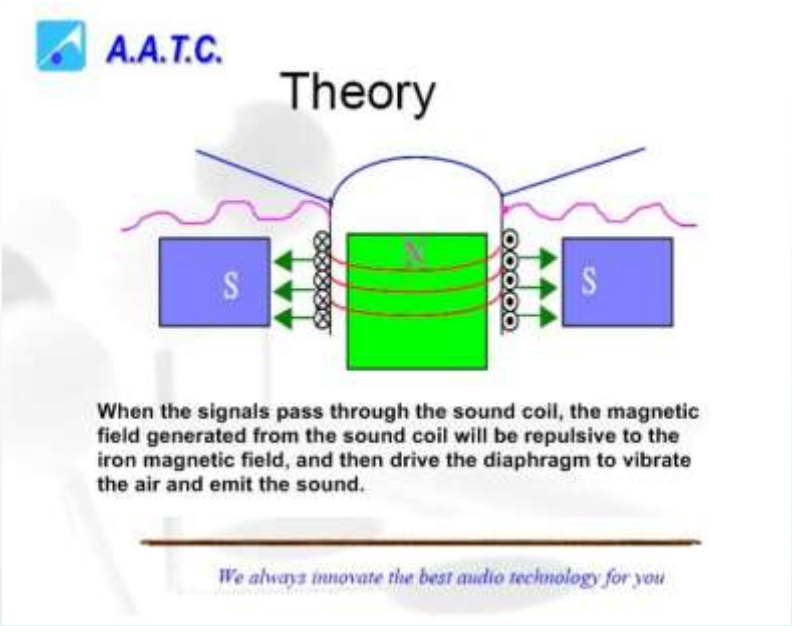
History

- **Invented in 1964 by Douglas Engelbart**
  - Consisted of a wooden shell, circuit board and two metal wheels that came into contact with the surface it was being used on.
  - Can only move into 4 directions
- **In 1972 "Ball Mouse" was created by Bill English**
  - Inspired by the trackball, a military device that was used in radar system for the Royal Canadian Navy
  - The ball replaced the wheels
  - Can move in every direction
- **Steven Kirsch invented an optics model for the computer mouse system in 1981**
  - This model uses light instead of ball to trace its movement
  - To prevent dirt from getting inside

Types of Mouses

- Optical mouse
  - Has no moving parts
  - Emits and senses light to detect mouse movement
  - Can be used on any surface
- Wireless mouse
  - Battery operated
  - Uses radio waves or infrared light waves
- Touch pads
  - Controls pointer by moving and tapping your fingers on the surface of the pad

OUTPUT



- SPEAKER
  - Invented in 1861 by Johann Phillip
  - Using three magnet
  - Produce longitudinal wave
  - In 1876, speaker is used to make telephone
  - In 1877,the idea of An electromagnetic coil driven was Introduced
  - In 1898, used the compressee air instead

Picture of speaker nowadays

JOB DIVIDING

- Task for Each Member
- TAI WEN JUN - Planning the meeting and the shooting progress
- -video editor
- -interviewer
- DESMOND -Video editor
- -checking the report
- -prototype material gathering
- RAFIY -Do the report
- -script creator
- AMIR -Do the report
- -prototype creator
- SHOAIB - Filmer
- -video editor

Team Working

- We lived in separate place
  - KTDI, KTC, KTR
  - We help each other to reach the meeting venue
- We helped each other for the editing part
  - We use filmora, premiumpro, PowerDirector

THANK YOU