

Reflection

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Industrial Design Master's Program

What I learned

- Using measurement equipment to measure and debug the circuits, such as different types of multimeters and oscilloscope.
- Working principles of components and electronics, such as transistors as a sub-circuit switch, op-amp as a comparator, capacitor.
- Using different tools to draw, simulate and visualize circuits schematic.
- Having a better sense of what the difference is between sensors and actuators and the way they work in a system. Skills to combine microcontroller (Arduino/Teensy) with electronic circuits to create an interactive prototype.
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Learning Process

Theory and Practice

The basic knowledge about electronic engineering and electronics is fundamental. I used some website to study the working principles of the electronics and understand the circuits. However, the theory study is abstract and not easy. Implementing theories in practice is a great opportunity to get familiar with building up a circuit in breadboard by hand, which enabled me to understand the schematic better. Afterward, the accumulated knowledge in the electives helped me to generate the concept of our mini-project.

Creating and testing a functioning circuit requires an overall understanding of the electronics tools, as well as cautious and patience. Debugging electronics is not easy for me and I need to practice more in the future.

Electronics and Programming

Regarding the Technology and Realization expertise area, I was able to combine the new knowledge with the preliminary knowledge about microcontroller I have learned from Creative Electronics. This is a good iteration for a better understanding of how to combine physical prototypes with digital systems, in order to create better interactions between products, systems, and users.

Future Goal

As a designer who is willing to create functioning prototypes with real-life applications, this elective can be a good starter point. For example, in our mini-project, we discovered a practical problem in our life and we are able to propose solutions using the knowledge from this elective. Besides, the core idea that I can control the results and realize the technical feasibility of my concepts is completely empowering for me as a future industrial designer.

Furthermore, I will also be able to read the datasheets of electronic components, thus, better communicate with engineers to co-create more meaningful products.

In my research project, I will be making a prototype with Arduino, touch sensor and rotation servo to create an interactive tangible interface, which could generate certain movements according to the input from the users. These elective equipped me with practical skills to design, build and test the prototype.