Project Title

AQUASENSE Smart Feeder and Monitoring System (4th Semester Final Project)

Time Accomplished

June 2025

Role/Position

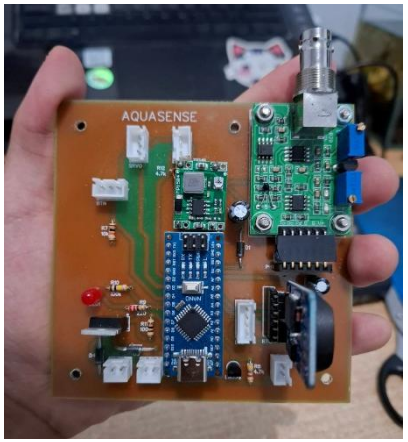
Project Manager, Electronics Fabrication

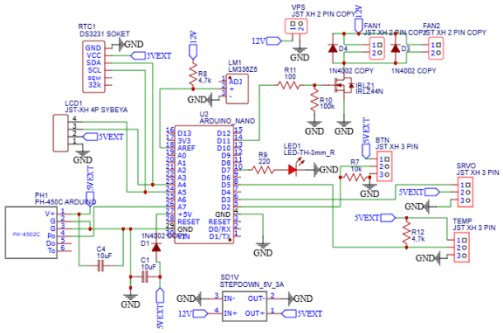
Publication

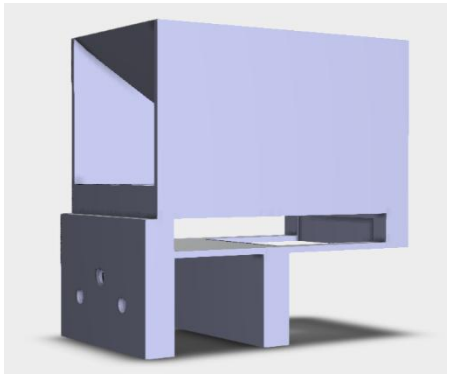
https://github.com/SFENrix/Aquasense

Description

AQUASENSE is a result when your hobby is infused with some engineering touch. In a two-man group with an additional exchange student from France, we manage to come up with an innovative solution for aquaculture, a scheduled auto feeder with water quality monitoring system. It will help the user keep an eye on the water pH and temperature by displaying on the 16x2 LCD while helping the user with partial automation using DC Fans for evaporative cooling and SG90 servo for scheduled feeding time. This isn't just about how to feed fish, this is physics, electronics, and aquaculture in a box full of innovation







Rio Ferdinand

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Apple Developer Academy Cohort 2026

Project Title
FPGA Door Lock (3rd Semester Final Project)

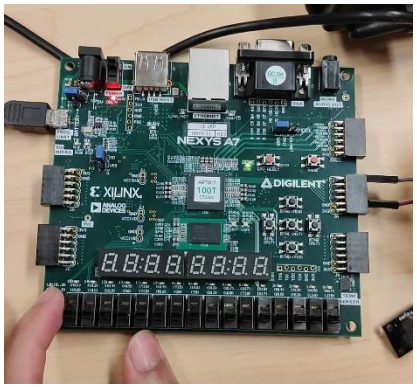
Time Accomplished
December 2024

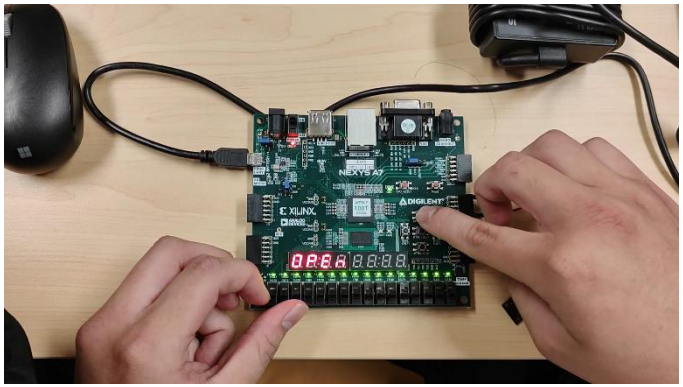
Role/Position
Components Developer

Publication
https://github.com/SFENrix/Door-Lock-FPGA

Description

This is a daring group project because we are required to create a doorlock system with several additional features using VHDL Programming and an FPGA board. It's rather unconventional because it's Hardware Description Language. Unlike high level languages like C, Java, or Python, in VHDL we are using logic gates such as AND, OR, NAND, etc to manipulate bit status to HIGH (1) or LOW (0) and create the sequential circuit which then we can implement the main lock function and its feature such as seven segment displays, password inputs, auto lock, override button, enter button, and a buzzer warning indicator.





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Project Title

Book Tracker App (3rd Semester Final Project)

Time Accomplished

December 2024

Role/Position

Application Layout Design

Publication

http://Github.com/thriveshadow/book-tracker

Description

This is the very first mobile app I ever created in a team project. In the process of creating the app we not only learn how to make the app itself but also to identify and solve real world problems with the app we created and how a mobile app can be a powerful tool to be used in daily life. This app is used to keep track of your book collections along with information about its price and time of purchase that the user can input manually or using the scanner. We use firebase for user data management like logins and each user's added books. The unique selling point of this app is its barcode scanner feature where we only need to scan the book's barcode to acquire information by syncing it with the Google Books API and ISBN API. You can access its details in this YouTube link https://youtu.be/aUgt2Khwhks?si=TOUvYoD9Yslywu_J

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Apple Developer Academy Cohort 2026

Project Title

Handheld Morse Code Device (Assigned Project from IEEE Student Branch)

Time Accomplished

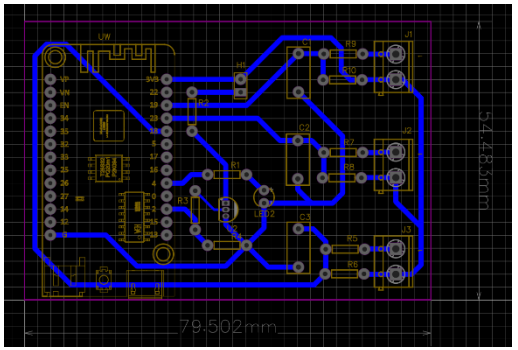
January 2025

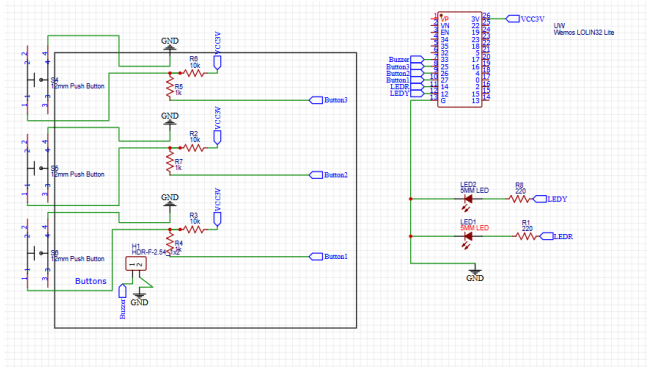
Role/Position

PCB Fabrication and Enclosure Design Idea

Description

This is the project that was assigned to me and my team during our period in the IEEE Student Branch, we were to create a wireless morse code device that consist of a receiver with a built in screen and a transmitter that can be hold with hands and instead of a lever we are using three buttons, each representing dot, slash, and a space that we can use to form a morse message. I personally am in charge with PCB design and the making of the transmitter module and participate in brainstorming ideas for the device enclosure design. The hardest part in my opinion is deciding the enclosure design for the device since we want to make it comfortable to be held but a more complex design will require more support in the 3D printing process which require more filament, making it not cost effective, so we really spend a good amount of time to find a sweet spot between cost friendly and user friendly design.





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Apple Developer Academy Cohort 2026

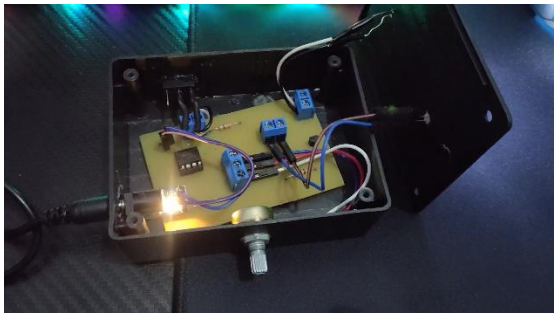
Project Title
Smart Lamp (2nd Semester Final Project)

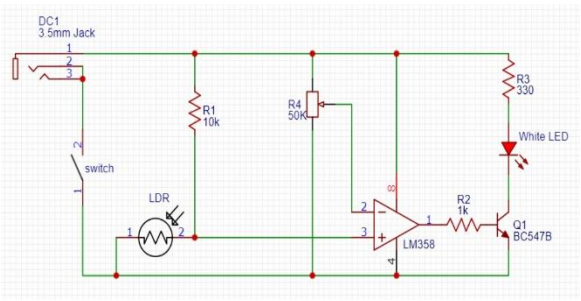
Time Accomplished
June 2024

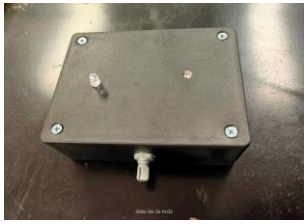
Role/Position
PCB Fabrication

Description

The Smart Lamp is the very first project I have done in university, it was done as a group with two of my colleagues. This serves as our introduction to learn electronic circuits design principles. This device's main component is an LM358 Operational Amplifier where we utilize its comparator function to compare voltage between a potentiometer as reference and a Light Dependent Resistor (LDR). The way it works is simply to automatically turn on a light when the environment lighting is dim enough such as evening and nighttime and then it will turn off when it's getting brighter like in the morning. We learn many skills during the process including PCB Design, PCB Etching, and Soldering.







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