Irving Becerril

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EDUCATION

University at Albany **Albany, NY**

Bachelor of Science, Electrical and Computer Engineering *Expected May 2025*

- *Relevant Coursework*: Introduction to ECE, Introduction to Engineering, Discrete Structures, Programming for Engineers/Introduction to Computer Science, Data Structures, Digital Systems, Intro to Circuits, Intro to Electronics, Signals and Systems, Software/Hardware Interface (Computer Organization and Programming), Ordinary Differential Equations, Probability for Scientists and Engineers, Programming Hardware Systems, Electrical Energy Systems, Robotics, Systems Analysis and Design.

Technical Skills: Java, JavaScript, HTML, CSS, Python, C, C++, C#, Arduino (C++ Environment), Circuitry/Circuit Implementation, VHDL, Logic implementation, MATLAB, Vivado, LTSpice, Programming Embedded Systems.

PROJECT EXPERIENCE

Lemmings Game Simulation using Vivado

- Developed a simulation of a classic game called "The Lemmings" using Vivado
- The digital circuit was able to replicate the behaviors of a Lemmings videogame character. It encompassed directional movement, wall detection and ground absence reactions using Finite State Machines, truth tables and Vivado software.

Automated Feeding Monitoring System Design

- Developed a digital system for a farmer to monitor feed supply using sensors, with a notification using lights, employing truth tables, K-maps, and MUX chips integration

Line Following Robot

- Using an Arduino kit, we used a chassis with motorized wheels that followed a dark line on the floor. Using photosensors, basic circuitry, and the Arduino IDE, it was able to navigate towards the darker surface, allowing it to follow it accordingly.

HashMap

- Using the Eclipse IDE, we made a HashMap that stored key-value pairs, allowing for efficient retrieval of values based on their corresponding keys using a hashing technique

Binary Tree

- Created a hierarchical data structure in which each node has at most two children, commonly referred to as the left and right child

Pizza Ordering System

- Using several classes, we made a pizza ordering system that gave you a menu to choose from, allowed you to choose signature pizzas, make your own pizza, store multiple pizza orders in one, and display a receipt of the total, including the pizza(s) ordered.

Graphs, Dijkstra, and Matrix

- Given a list of cities and the distance from a certain place, using different methods, we found the shortest path from a source city to all other cities in a weighted graph.

Rice Cooker Simulator

- Using the MSP430FR2355, we implemented the use of a rice cooker, including a timer represented by a potentiometer which determines the amount of time using ADC, and a low heat state which uses PWM in conjunction with an LED to represent as the low heat indicator.

Micro-Climate Station

- Designed an app that organized data that was collected from a sensor module. The app would prompt the user to login/sign-up, and then be showed a home page where data collected from the sensor module would be shown in matrix and graph format. Allowed user to connect to web of several sensor modules depending on their location using their zip code.

Awards

- ECE SHOWCASE AWARDS 2024: Best Junior Design Project (Runner-Up)

SKILLS & INTERESTS

Languages: English (Native), Spanish (Fluent)

General Skills: Proficient in Communication, Problem Solving, Collaboration, MS Office, Google Workspace

Interests: Programming, NLP, Sustainability, Operations Research, Mathematical Modeling, Finance, Coding, Debugging, Software, Control Systems, Energy Systems, Embedded Systems