Logan Cudia

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Permanent Address
Palatine, IL 60074

Current Address
Champaign, IL 61820

EDUCATION

University of Illinois Urbana-Champaign ***Expected Graduation: May 2025***
Grainger College of Engineering
Bachelor of Science in Electrical Engineering

Relevant Coursework:

- Introduction to Electronics, Computer Systems & Programming, Introduction to Computing, Linear Algebra with Computational Applications, Differential Equations

Skills: Troubleshooting, Problem Solving, Communication, Teamwork, Ability to work independently
Languages: C, C++, Python, LC-3 Assembly, HTML, CSS, JS
Programs: MS Office, Linux, Git, Intel Quartus Prime, MS Teams, KiCAD, STM32

PROJECTS

Maze-Solver ***November 2022***

- Created a maze solver in C that solves a prebuilt maze from a text file inputted by file I/O
- Employed struct data type and dynamic memory allocation to store maze dimensions and walls, path, and start and end positions.
- Implemented a recursive depth first search (DPS) algorithm to that detects dead ends within the maze, visited parts of the maze, available path options, and the end position

Vending Machine Finite State Machine (FSM) ***February 2022-April 2022***

- Designed a vending machine simulation that identified only dimes and quarters, tracked the amount of money inputted, accepted/rejected coins accordingly, and signaled when exactly 35 cents have been paid
- Developed a schematic on Intel Quartus Prime and tested functionality through a simulated waveform
- Incorporated sequential logic of FSMs with TTL chips, 555 Timer IC, and positive-edge-triggered D flip-flops to keep track of current vending machine states and transitions

Straight -Run Car with Speed Control ***October 2021***

- Designed a motor-control circuit with adjustable wheel balance potentiometer with speed control
- Utilized nMOS-based logic to control each motor of the car and PWM signals to tune speed of each wheel
- Analyzed duty cycles on Scopy Oscilloscope and calculated the frequency of the PWM used for speed

EXPERIENCE

Illini EV Concept ***August 2022-Current***
Wheel Speed Encoder Board

- Part of a team that designs and builds a fully electric vehicle (EV) from the ground up to compete in the Shell Eco-Marathon against other EVs in a 3-day event to see who has the most energy-efficient vehicle
- Designed a PCB board with a STM32 microcontroller, Hall Effect sensor, and IR sensor to track the RPM of the wheels
- Collaborating with the embedded team to program our board and relay data collected through CAN Bus

St. Peter Lutheran School and Church ***June 2022-August 2022***
Summer Camp Leader

- Taught STEM lessons to second graders and facilitated STEM-related projects in class such as designing and constructing a bridge made of noodles
- Coordinated and collaborated with other counselors to implement camp events, field trips, and Water Days
- Communicated to parents about concerns and responded to Summer Camp Coordinators' expectations and policies
- Provided leadership to second graders and helped them learn cleanliness, rules, respect, and communication