Abdulquadri **Abiru**

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Education

University of Florida *Gainesville, FL*
BS IN ELECTRICAL ENGINEERING *August 2018 – May 2022*
GPA: 3.58/4.00

Experience

UF Machine Intelligence Lab (MIL) *Gainesville, FL*
STUDENT RESEARCH ASSISTANT, ELECTRICAL TEAM August 2020 – *Present*

- Fall 2020: Collaborated with a senior team member to design the steering homing system for an autonomous vehicle. My tasks included servo testing, software debugging, and reading documentation to aid hardware debugging.
- Spring 2021: Took over and advanced the design of the siren control board for our submarine. Tasks included the soldering of board components using surface mount techniques and writing firmware to give the submarine motherboard autonomous control of the siren. Firmware was written using code composer studio for a tm4c123gh6pm TI chip and uses the CAN protocol for intersystem communication.

UF Generational Relief in Prosthetics (GRiP) *Gainesville, FL*
DISPENSER TEAM, PROJECT LEAD January 2021 – *May 2021*

- Led a team of three to achieve the goal of prototyping an Arduino-based, hands-free sanitizer dispenser.
- Taught my group members how to code in Arduino, make an electrical schematic and design a printed circuit board

UNIVERSAL GRiP CONTROLLER TEAM, ELECTRICAL LEAD August 2020 – *May 2021*

- Participated in the design of an Arduino-based one-handed gaming controller for gamers with limbic differences.
- Coordinated electrical team members to design a 3D layout of the joystick circuit and map the buttons.
- Constructed an electrical schematic diagram and printed circuit board from the layout using EasyEDA PCB design software.
- Upgraded the existing code to reduce button press delays and improve the Arduino's functionality as a human interaction device (HID)

OXIMETER TEAM, TEAM MEMBER August 2020 – *December 2020*

- Participated in the design and construction of an Arduino-based oximeter to measure blood oxygen levels.
- Helped with soldering components together and identified the baud rate error that caused wrong output to the display.

SOLIDWORKS TEAM, TEAM MEMBER May 2020 – *August 2020*

- Assisted with the 3D modeling of modified Nintendo switch controllers for gamers with limbic differences.

UF SolarGators *Gainesville, FL*
ELECTRICAL TEAM, POWER BOARD DIVISION January 2021– *Present*

- Created documentation containing an estimate of the car's overall power consumption.
- Designed and implemented a 40 A load tester circuit.
- Designed and prototyped an upgraded reverse polarity protection circuit for our car. The circuit uses an LM74610QDGKRQ1 smart diode in combination with an NMOS transistor. It increases efficiency by reducing passive power consumption due to the setup's reduced forward voltage drop. This circuit would be implemented on our next car.

MOCK COMPETITON PLANNER, BATTERY PROTECTION DIVISION January 2021 – *Present*

- Assisted in the organization of a mock racing competition for new members of the club who missed out on the Formula Sun Grand Prix competition experience due to COVID 19
- Created documentation to outline battery protection test procedures and expectations

UF ECE Ambassadors
MEMBER, CAREER FAIR PLANNING COMMITTEE *January 2020 – present*

- Administer campus-wide tours to high school students and parents who wish to learn more about ECE at UF.
- Participate in creating awareness of the resources available to UF ECE majors.
- Fall 2020 and Spring 20201: Assisted in the organization of a virtual career fair for UF ECE students by handling company outreach and information dispersion.

University of Florida Instructional Technology Department
STUDENT ASSISTANT *September 2019 – Present*

- Revising course PowerPoints and pdfs to make them accessible through assistive technology.
- Designing course headers using adobe creative suite.
- Generating close captions for lecture videos.

Volunteer Experience

United for Kids Foundation *Lagos, Nigeria*
VOLUNTEER *June 2019 – August 2019*

- Supported full-time volunteers in executing literacy enhancement programs in three local primary schools with over 300 students.
- Facilitated a behavioral seminar with 6th-grade students to prepare them for life in high school.

Projects

Battery Level Indicator

- Designed and built a battery level indicator using two LM393 comparator ICs. The indicator is powered by an 18V battery (two 9v batteries in series) and contains a resistor divider network that is set up to obtain 12V, 9V, 5V voltages for measurements. This was to help me estimate the voltage in alkaline batteries I use to power other projects.

NE555 Brushing Timer

- Designed and built a 2-minute timer using a 555 timer IC in monostable mode. This timer was to help me brush my teeth for the minimum recommended time by medical professionals.

Arduino Programmer

- Designed a programmer to allow me to load the Arduino bootloader onto fresh Atmega328 chips as well as program code onto them using the Arduino IDE syntax. The objective of this was to allow me to shrink Arduino projects to just the relevant parts of the Arduino Uno breakout board and increase my project prototyping speed.

Thermostat with Alarm

- For my Design 1 final project, I built a thermostat with an alarm using a thermistor circuit, a PIC microcontroller, a 16 x 2 LCD, a digital-to-analog converter, and an 8Ω speaker.

Zigbee and Arduino IoT Network

- For my Wireless & Mobile Networks final project, my group members and I designed an IoT mesh sensor network using ZigBee radios and Wi-Fi compatible boards. The network was capable of reading sensor data from three different remote sensors, uploading it to Arduino IoT Cloud, and actuating remote LEDs based on sensor values.

Skills

Development Tools: Arduino, NodeMCU, Tiva TM4C123G Launchpad, Raspberry Pi, Zigbee RF Radios
Software: Altium (Proficient), Code Composer Studio (Proficient), Atmel (Proficient), MPLABX (Proficient), XCTU (Intermediate), WaveForms (Proficient), LTspice (Proficient), Adobe Photoshop (Intermediate), SolidWorks (Intermediate), Microsoft Office Suite (Proficient).
Programming Languages: C Programming for Embedded Applications, Python, Arduino IDE Programming Language, MATLAB
Languages: English (Native), Yoruba (Native), Arabic (Reading Proficiency)