

WILLIAM C. HOWELL

Electrical Engineering Student | PCB Design | Embedded Systems | Robotics | Power Electronics
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PROFILE

Electrical engineering student with a 3.85 GPA and hands-on project experience in PCB design, battery protection circuits, embedded C++ programming, ESP32 systems, robotics, motor control, soldering, lab testing, and 3D-printed prototypes.

EDUCATION

Tennessee Tech University, Cookeville, TN

Expected May 2028

B.S. Electrical Engineering | GPA: 3.85 | Dean's List

Relevant coursework: Digital Systems, ECE Explorations, Calculus II, Data Structures and Algorithms, Calculus III, Calc-based Physics I with Lab; in progress: Circuits & Electronics I, Microcomputer Systems, Linear Algebra, Differential Equations.

Member, Robotics Club; Eminence Award recipient for creating a reverse-voltage protection circuit.

University of North Alabama, Florence, AL

Aug 2024 - Dec 2025

Accounting and Finance coursework

President's List for three consecutive semesters with a 4.0 GPA; Honors College member and UNA Library employee supporting 3D printing.

ENGINEERING PROJECTS

Low-Voltage Cutoff PCB for 3S Battery Protection

2025

Designed an EasyEDA PCB manufactured by JLCPCB to cut off a 3S battery at 9.7 V using an LM393 comparator, TL431 shunt regulator, voltage divider, MOSFET switching, and pull-up/pull-down resistors.

Validated the circuit through schematic revisions, breadboard testing, perfboard testing, soldering, and 12 AWG current-path reinforcement for approximately 12 A operation.

Dual Robotic Arms with ESP32 Bluetooth Control

2026

Programmed ESP32 control logic in C++/Arduino IDE using Bluepad32, PCA9685 PWM servo control, MG995/MS90 servos, Xbox controller input, servo calibration, and serial debugging.

Web-Controlled RC Car with Live Camera Feed

2025

Built an ESP32-CAM vehicle with WiFi browser control, Xbox controller support, L298N motor driver, 1S battery power system, boost converter, soldered wiring, and 3D-printed parts.

DIY Wall-E Robot

2025

Integrated ESP32, PCA9685 servo driver, L298N motor driver, buck/boost converters, DFPlayer Mini audio, custom C++ code, 3D-printed mechanisms, and schematic/PCB design.

TECHNICAL SKILLS

Circuit design and lab: EasyEDA, PCB layout, schematic capture, JLCPCB, battery protection, MOSFET switching, comparators, voltage dividers, buck/boost converters, soldering, oscilloscope, multimeter, function generator, bench power supply.

Embedded systems and robotics: ESP32, ESP32-CAM, Arduino IDE, C++, Bluetooth, WiFi, PWM, PCA9685, L298N, servo and DC motor control, live camera control.

Fabrication and software: Fusion 360, Tinkercad, Blender, 3D printer assembly/repair, 3D Printing and CNC Slicers, HTML, CSS, JavaScript, PHP, SQL, AJAX, Python.

WORK EXPERIENCE

Godwin & Associates, Savannah, TN

May - Aug 2025

Intern Accountant

Supported accounting work during a summer internship by assisting with client records, bookkeeping tasks, and financial document organization.

Used attention to detail, spreadsheet organization, and professional communication while learning small-business accounting workflows.

Design Team Sign Company, Crump, TN

Aug 2023 - Dec 2023

High School Co-op / Factory Worker

Completed a fall-semester high school co-op building sign components through CNC material handling, assembly-line production, acrylic vinyl application, LED installation, and battery wiring.

Shadowed accounting and engineering departments to understand production planning, design workflow, and business operations.

The Grand Harbor, Pickwick, TN

May-Aug 2022; May-Aug 2023

Summer Dock Worker

Worked summer seasons handling boat tie-offs, refueling support, pump-out service, inventory restocking, cleaning, and customer-facing dock operations.

eBay Business, Remote

Jan 2018 - Jan 2023

Independent Seller

Managed listings, order fulfillment, pricing, customer communication, and overseas manufacturer communication for a small e-commerce business.

LEADERSHIP

University of North Alabama Poker Club

2024 - 2025

Founder and President

Founded and led a campus club, coordinated participation, and managed regular student activities.