ERIC I RAMIREZ

COMPUTER ENGINEER
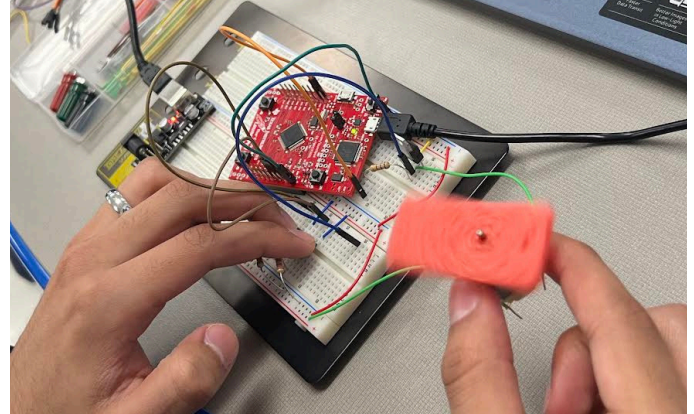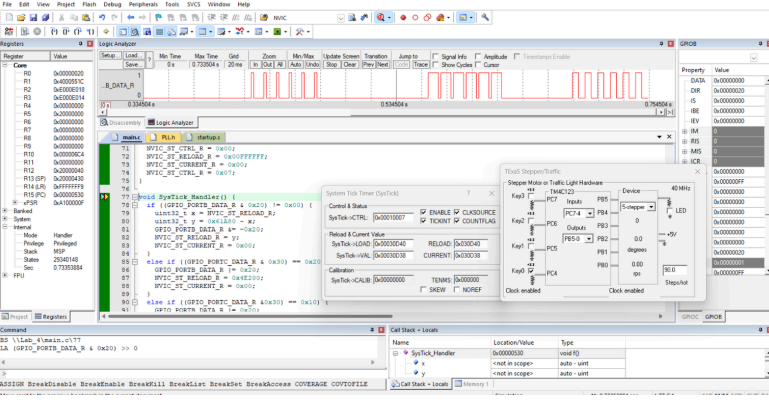
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MOTOR DRIVERS - CSU, CHICO

What?
- Programmed SysTick PWM with interrupts to control a DC motor at 20%, 50%, and 80% speeds
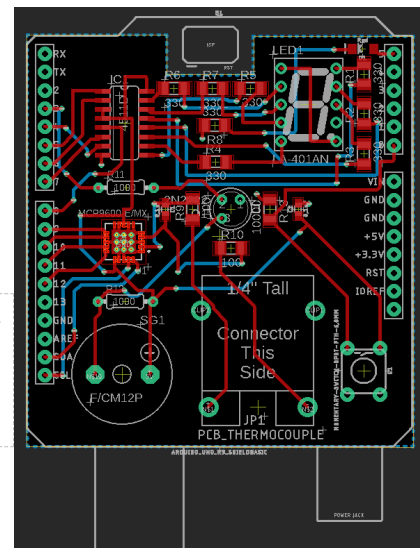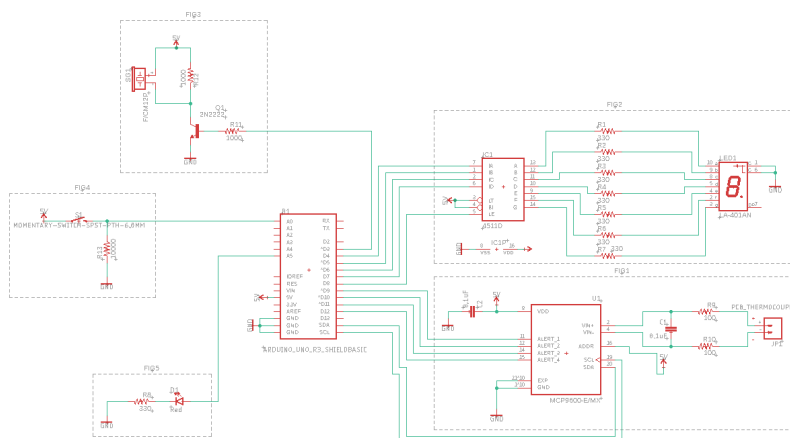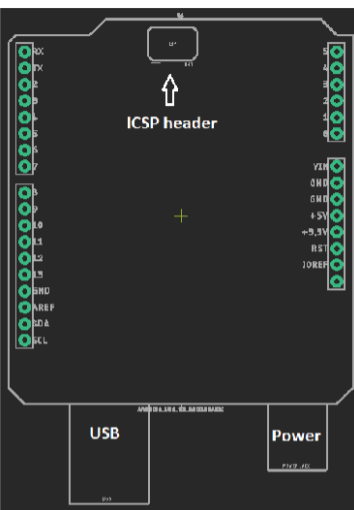- Built circuit to implement code

How?
- Optimized MCU to 40 MHz and rewrote ISR for real-time RELOAD updates; fully tested using logic analyzer

Results
- Enabled 0% manual delay handling, improving speed control precision and reducing test time by 30%

PCB DESIGN - CSU, CHICO

What?
- Designed a unified Arduino shield
- Created a PCB layout
- Integrated schematic sections into one design for the Arduino shield

How?
- Using AutoDesk(EAGLE) Software
- Integrated I2C, BCD, and alarm systems within strict shield layout specs

Results
- Met 100% of design rules for trace width, spacing, and ground plane

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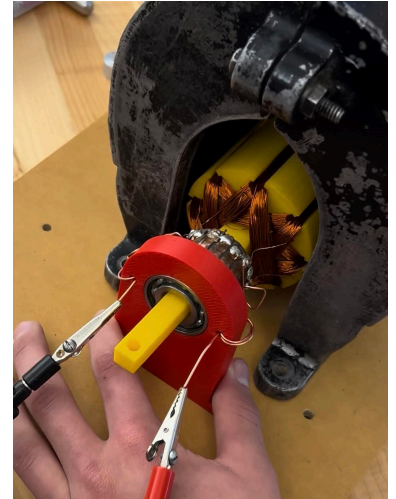
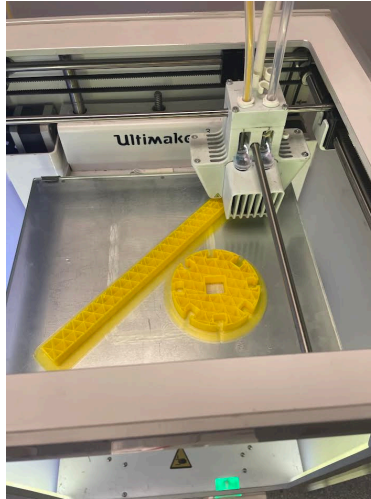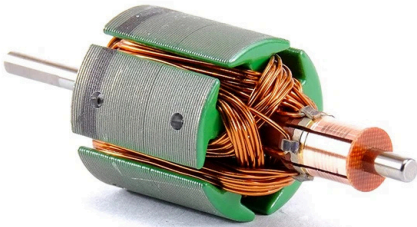✉ ericiramirez25@gmail.com

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DC MOTOR - CSU, CHICO

What?
- Upscaled a factory DC Motor by 350%
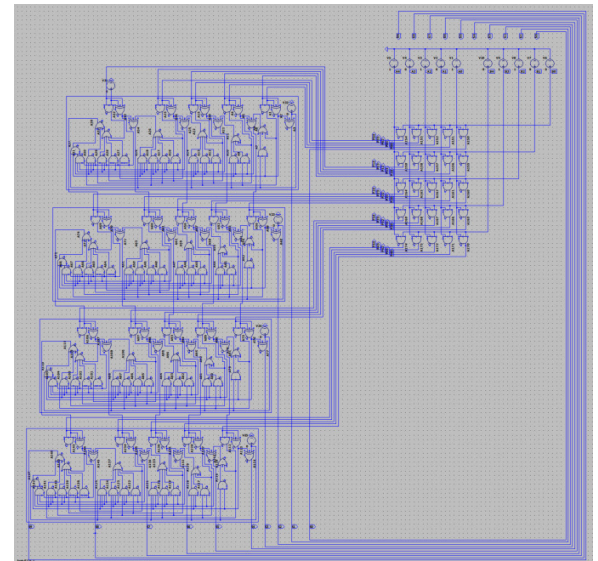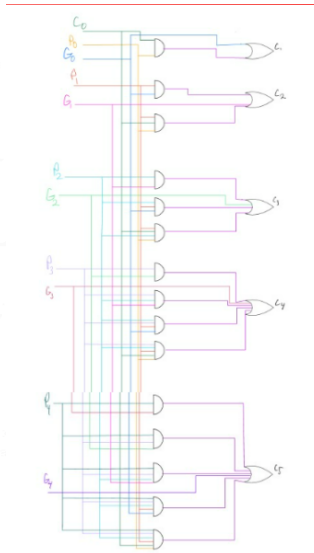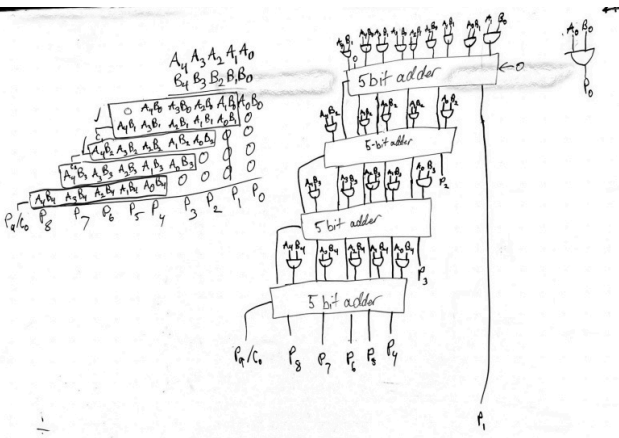- 3D printed model
- Improved efficiency

How?
- Using Solid Works to 3D print the shaft and housing & Soldered components together
- Ensured electric field aligned with magnetic poles

Results
- Achieved continuous rotation at 3000 RPM
- Lifted 5.5lbs using a pully system

5-BIT MULTIPLIER - CSU, CHICO

What?
- Designed a 5-Bit Multiplier
- Develped a custom 5-level AND gate array

How?
- Using LTSpice to simulate the product
- Researching other multiplier ideas
- Implementing sketches into simulations

Results
- Successfully multiplied 5 Bits by 5 Bits
- Reduced propagation delay by 25%
- Bypassed LTSpice's bitwise input limitations