Atif Khan

Hardware & PCB Design Expert

PORTFOLIO

Contact Details:

+92 3456888102
+92 3146767985
12396.khan@gmail.com
fiverr.com/itx_atifkhan

How to Study This Portfolio

Project Title

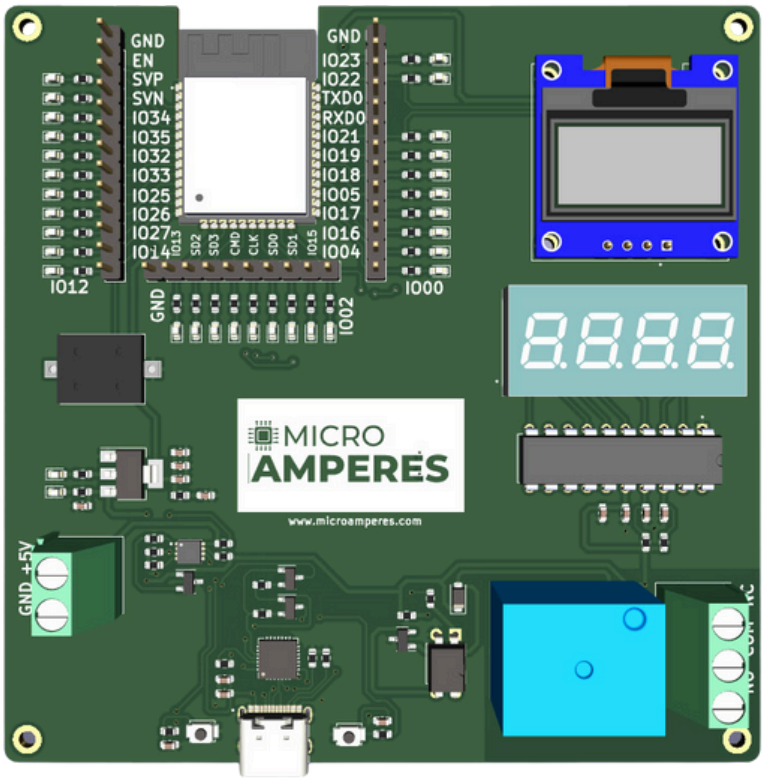
Main Picture

esicription

ther pics

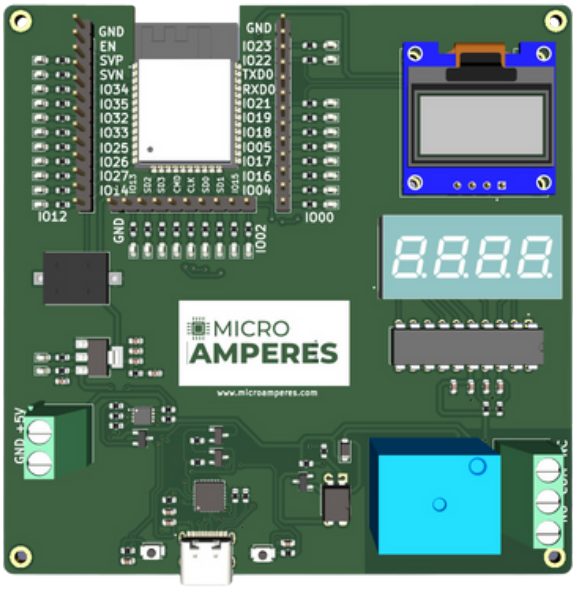
MICRO AMPERES

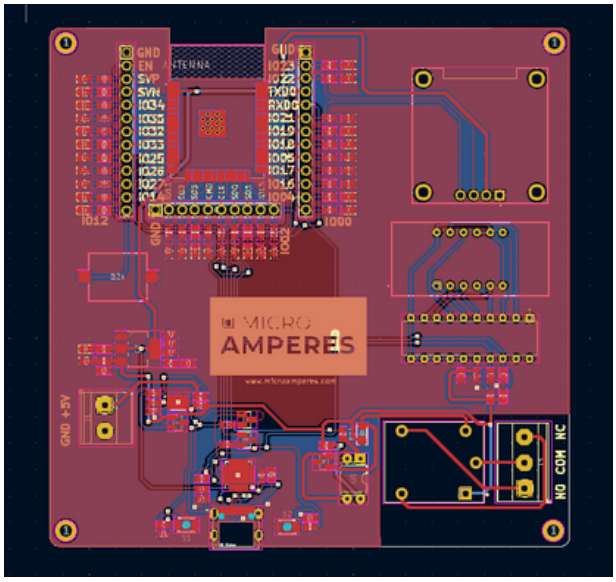
Project # 1: ESP32 dual Power Source Development Board

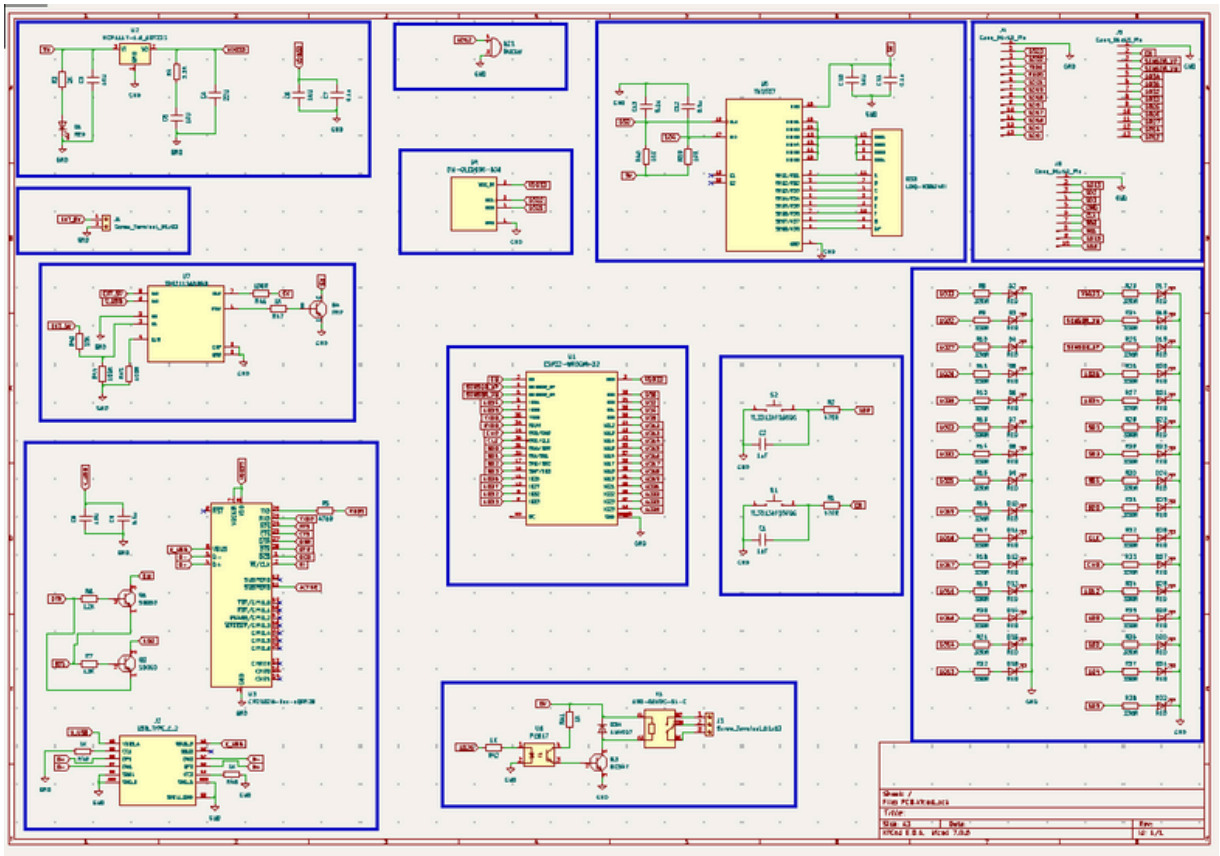


The **ESP32 Dual Power Source Development Board** is an innovative project designed to enhance the functionality and reliability of ESP32-based applications. This **board features dual power capabilities**, allowing it to be powered via a USB-C connection or an external 5V DC source. A **redundant power supply circuit** intelligently selects the optimal power source when both are connected, ensuring stable operation. Integrated peripherals include an **OLED display** for real-time data, a **relay** for controlling high-power devices, a **buzzer** for audio alerts, and a **seven-segment display** for numerical data. The **schematic and PCB** for the board were meticulously designed using **KiCad**, **demonstrating advanced proficiency in electronics design automation and resulting in a robust and versatile development platform.**

MICRO
AMPERES

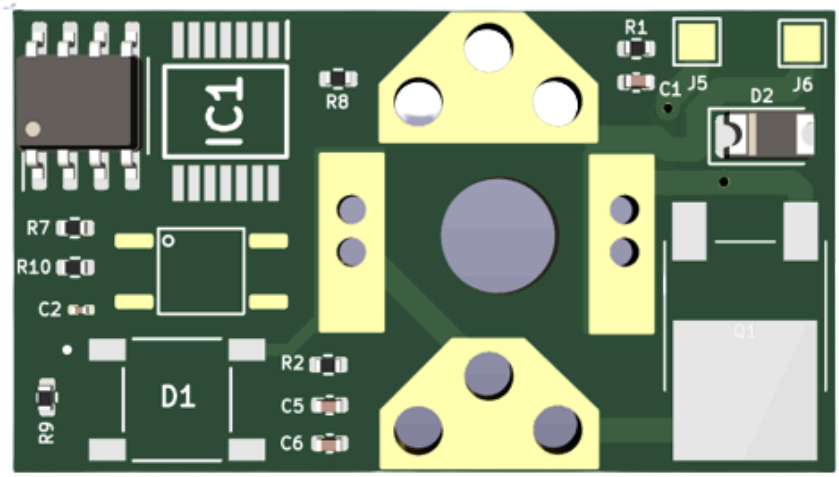






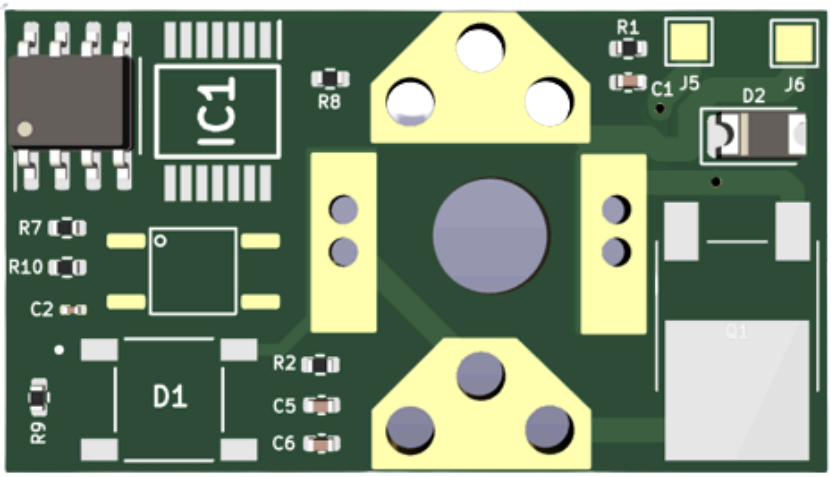
MICRO AMPERES

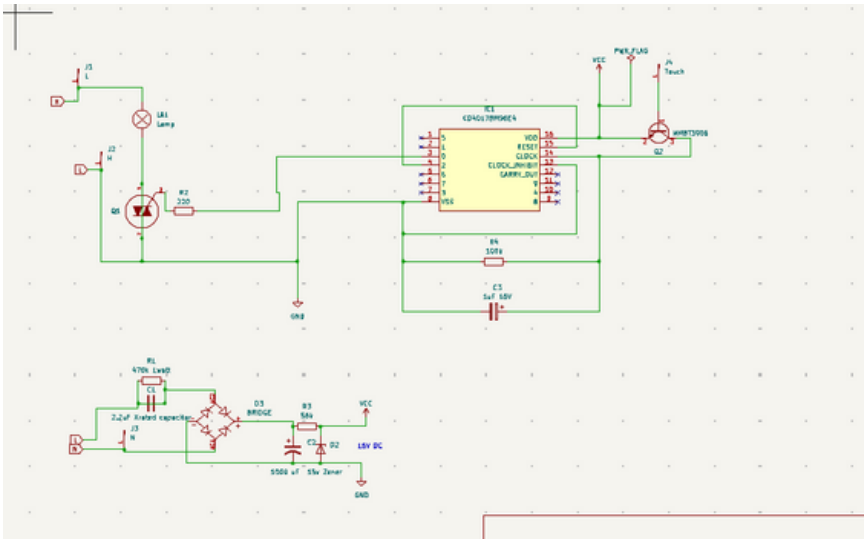
Project # 2: High Power Led Driver

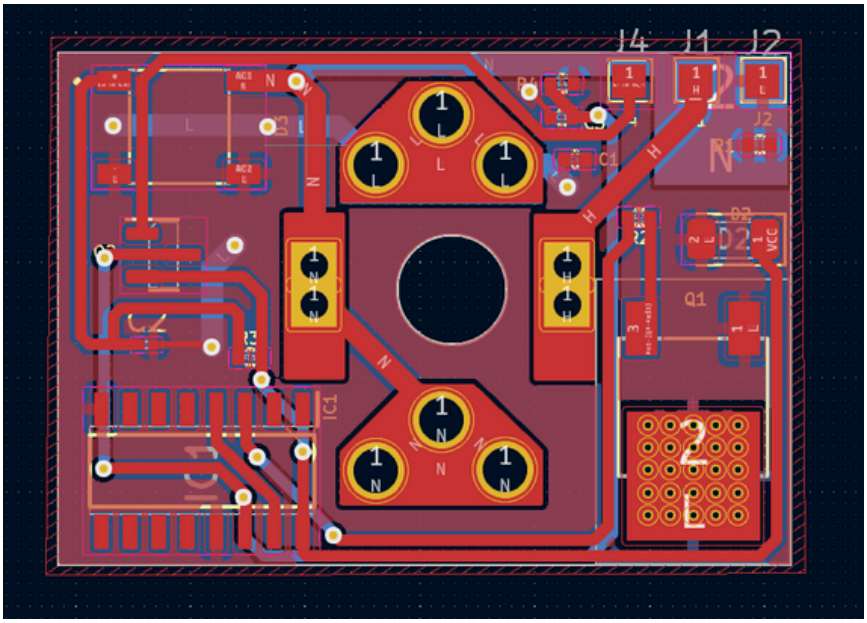


The **High Power LED Driver** is an advanced project engineered to convert a **220V AC input into the high-power DC voltage** necessary for LED operation. This circuit is precisely **designed to ensure efficient and error-free current flow through its pathways**, providing a reliable solution for high-intensity LED applications. The design incorporates sophisticated techniques to manage high power levels and maintain stability. The **schematic and PCB** layout were meticulously created using **KiCad**, **demonstrating a high level of proficiency in electronics design automation. This results in a robust, efficient, and reliable LED driving solution suitable for various high-power lighting applications.**

MICRO
AMPERES

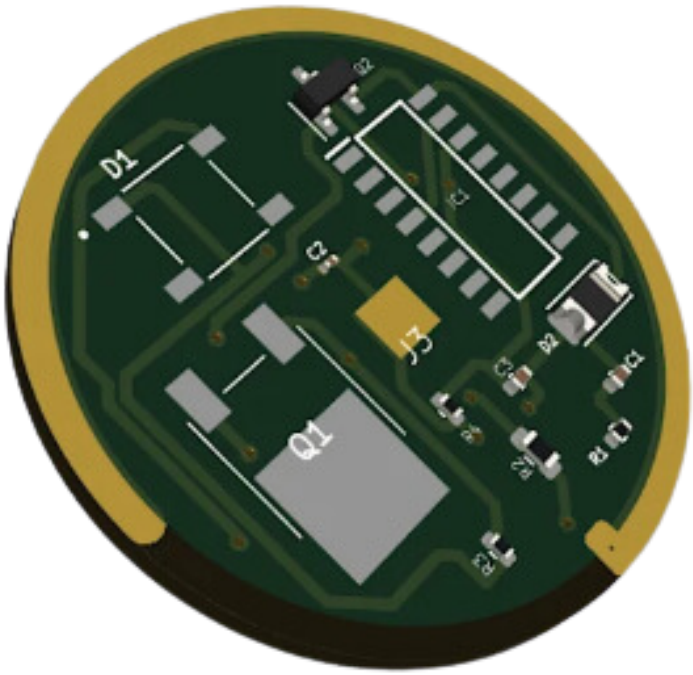






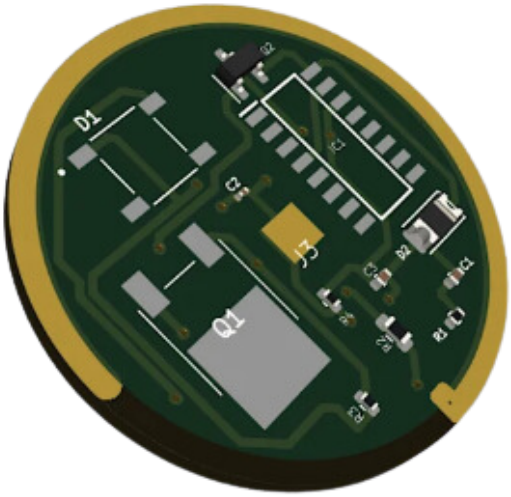
MICRO AMPERES

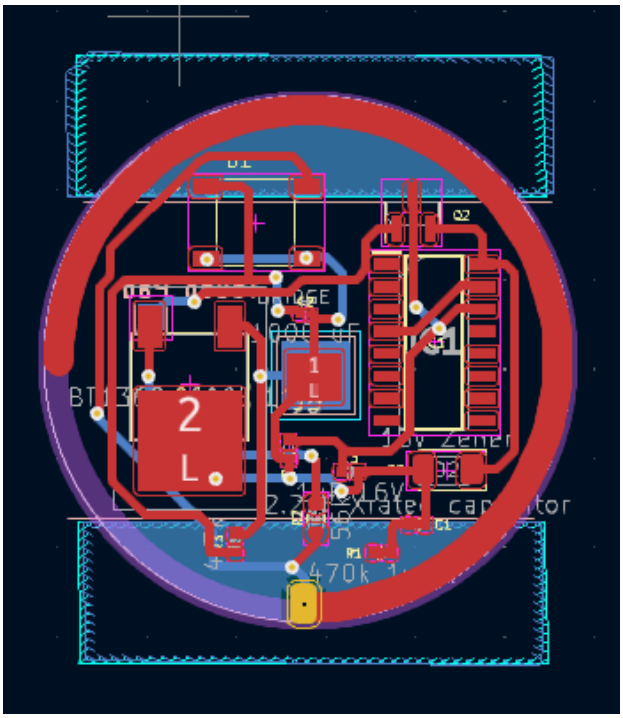
Project # 3: High Power Led Driver 2

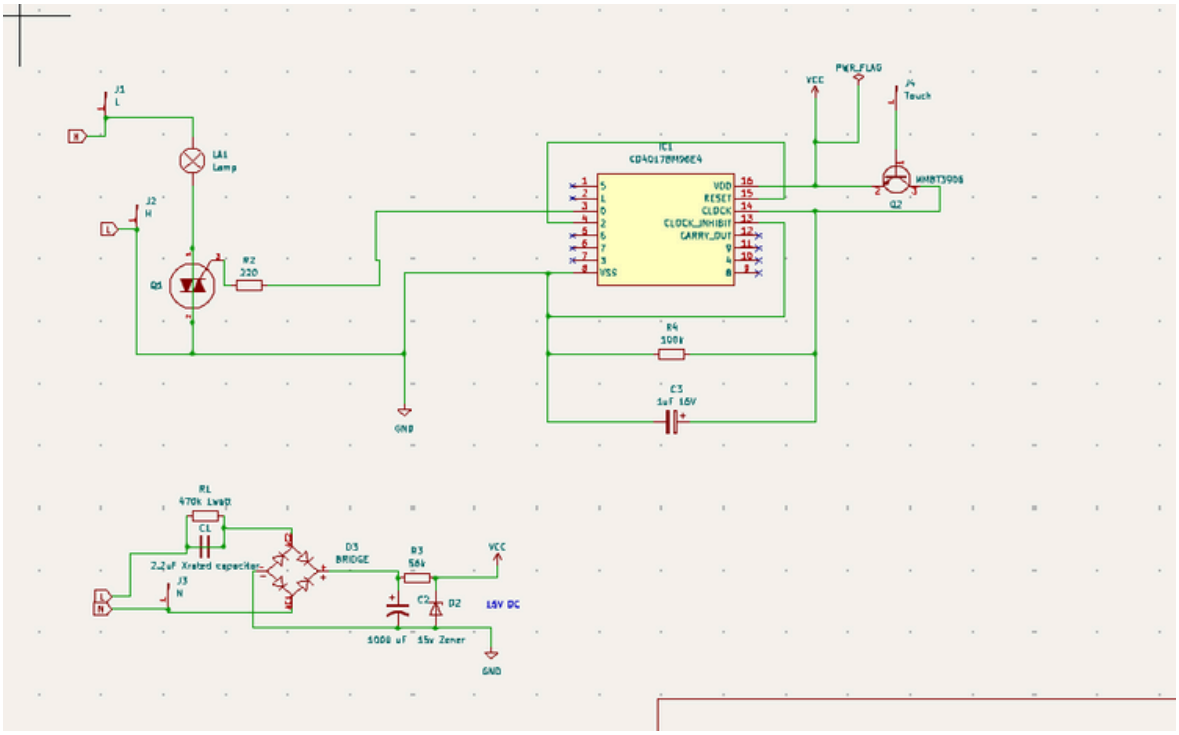


The **High Power LED Driver** is an advanced project engineered to convert a **220V AC input into the high-power DC voltage** necessary for LED operation. This circuit is precisely **designed to ensure efficient and error-free current flow through its pathways**, providing a reliable solution for high-intensity LED applications. The design incorporates sophisticated techniques to manage high power levels and maintain stability. The **schematic and PCB** layout were meticulously created using **KiCad**, **demonstrating a high level of proficiency in electronics design automation. This results in a robust, efficient, and reliable LED driving solution suitable for various high-power lighting applications.**

MICRO
AMPERES

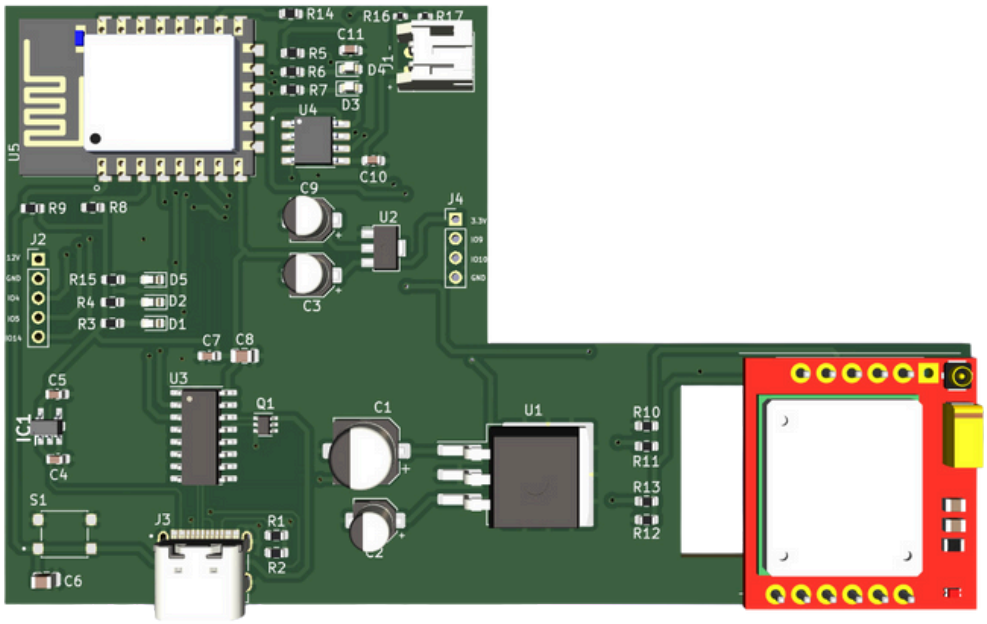






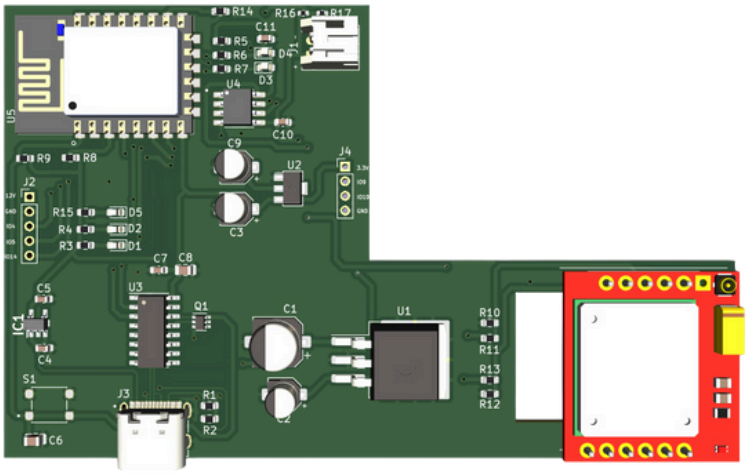
MICRO AMPERES

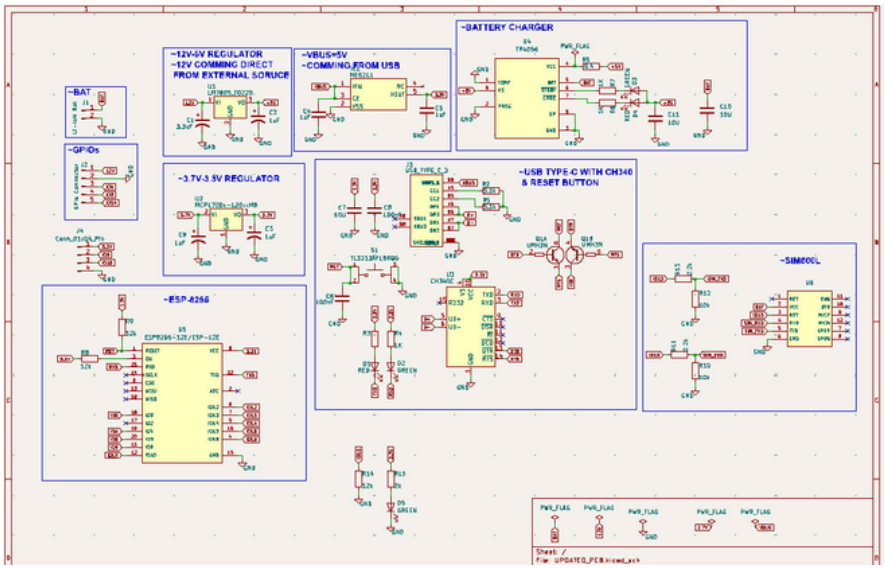
Project # 4: ESP8266 with Battery Charger and SIM800

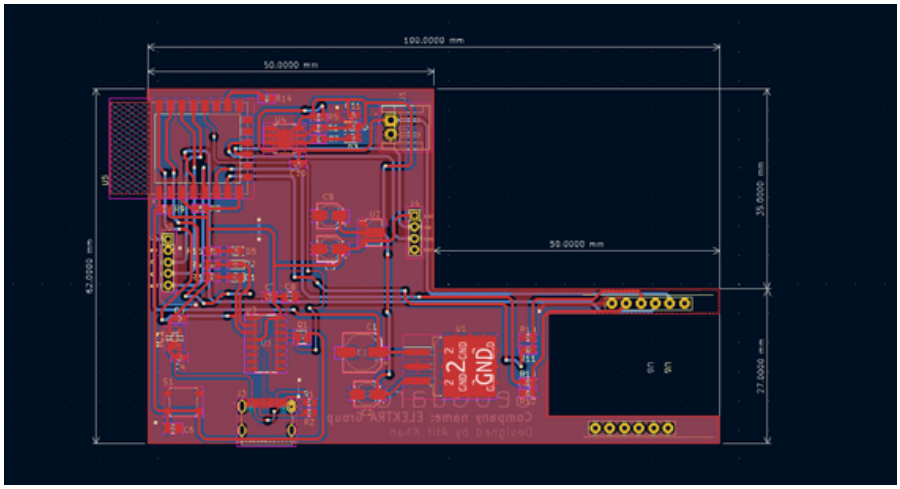


The "**ESP8266 with Battery Charger and SIM800**" project integrates the **SIM800 module with the ESP8266** to create a versatile **solution for IoT applications**. A standout feature of this circuit is its **battery charging capability**, providing backup power and allowing the device to be installed virtually anywhere. This ensures continuous operation even in the absence of a direct power source. The design includes sophisticated power management to maintain battery health and performance. Both the **schematic and PCB layout were expertly crafted using KiCad**, **showcasing advanced proficiency in electronics design automation and resulting in a reliable and flexible IoT solution.**

MICRO
AMPERES

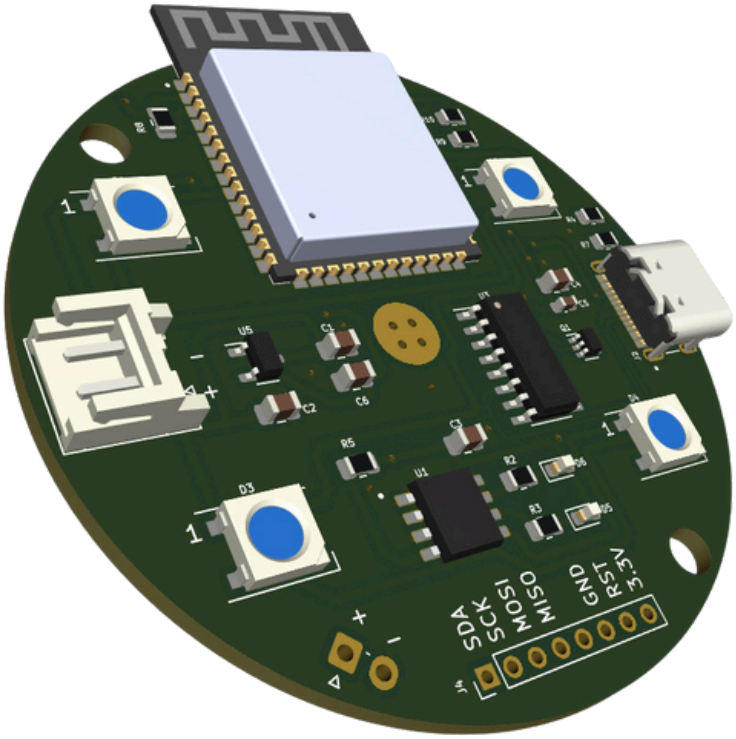






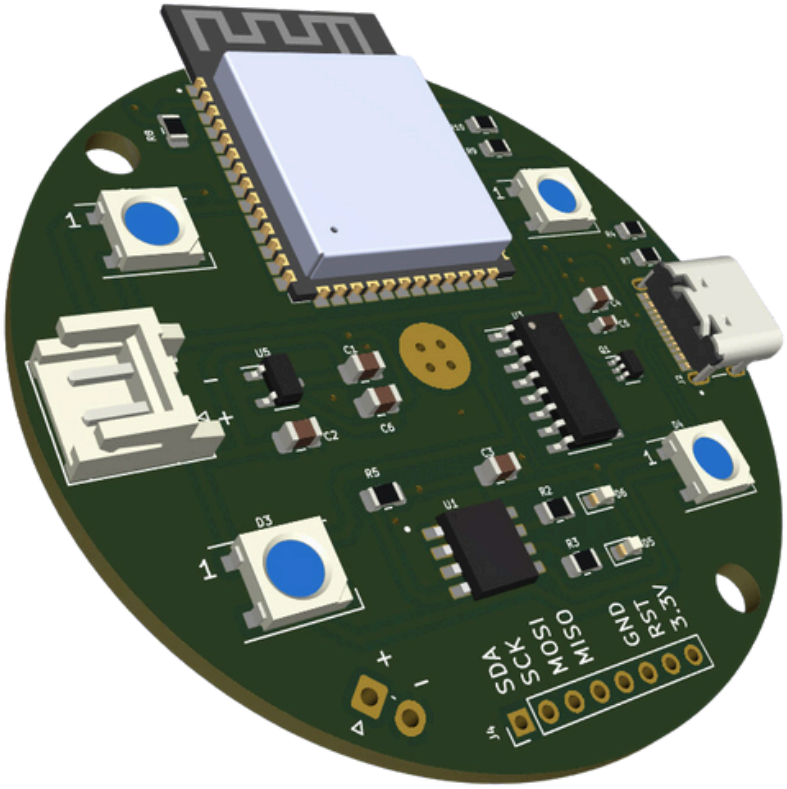
MICRO AMPERES

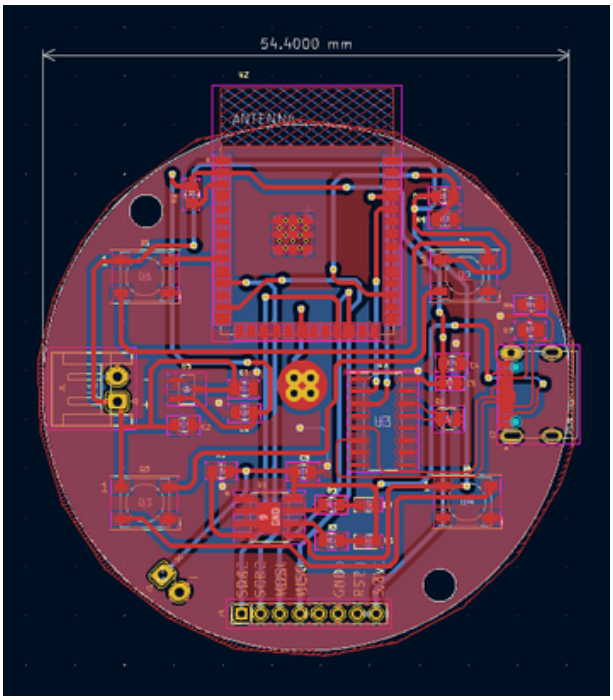
Project # 5: ESP32 with RGB Light Interfaced

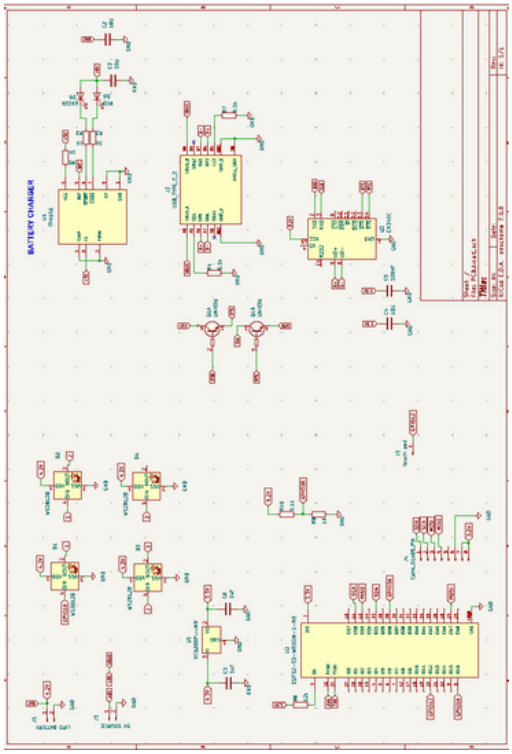


The "**ESP32 with RGB Light Interfaced**" project integrates **four RGB LEDs** with the ESP32, creating a vibrant and dynamic lighting solution for various applications. This circuit also features **battery charging capability**, ensuring continuous operation and flexibility in installation locations. The design allows for precise control of the RGB LEDs, enabling a wide range of color combinations and effects. Both the **schematic and PCB layout were meticulously designed using KiCad**, **demonstrating expertise in electronics design automation and resulting in a reliable, versatile, and visually impressive lighting system powered by the ESP32.**

MICRO
AMPERES

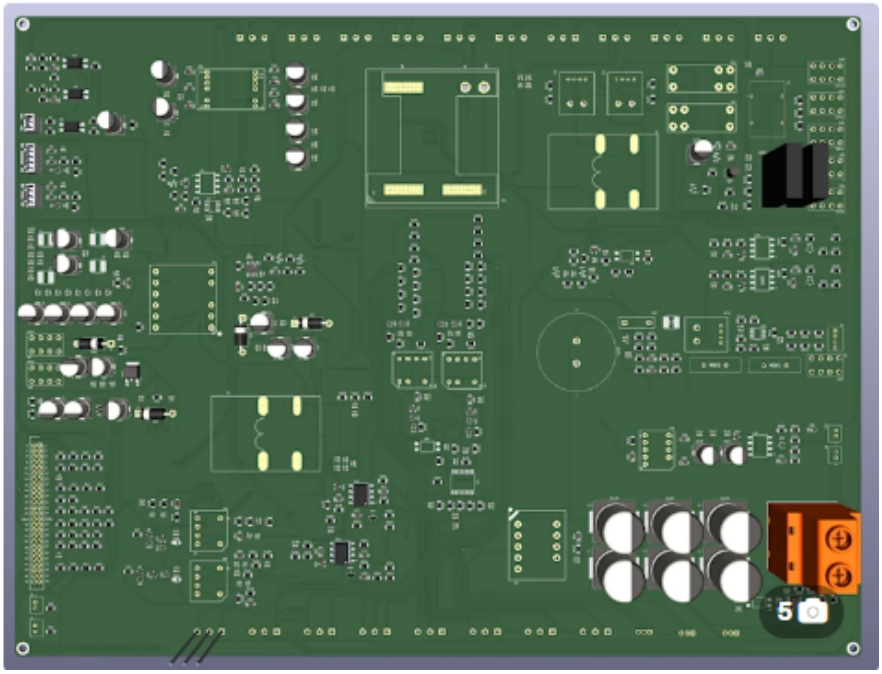






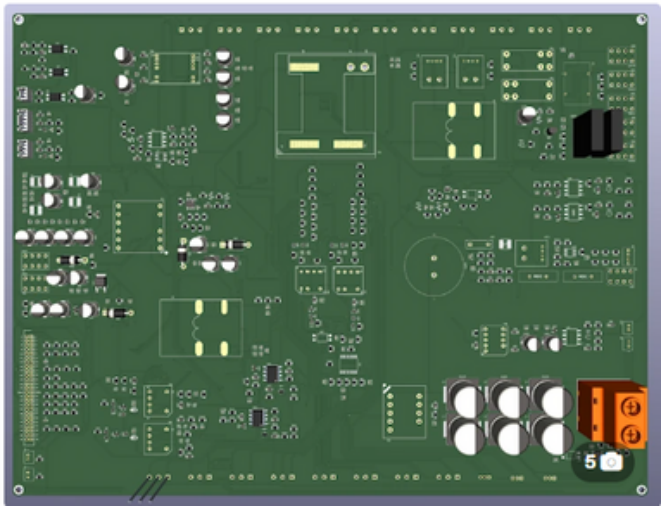
MICRO AMPERES

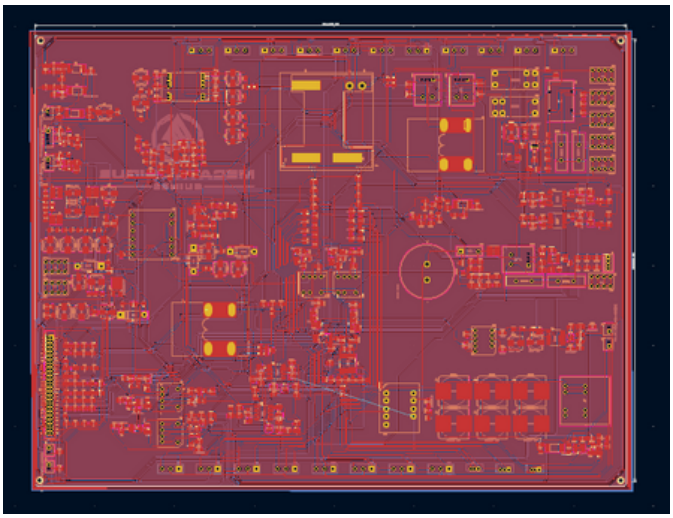
Project # 6: Solar power Inverter

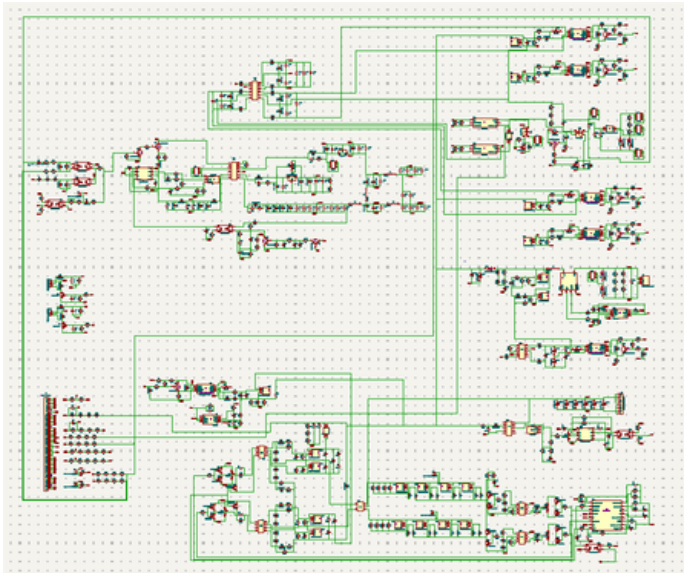


The "**Solar Power Inverter**" project is designed to **convert low DC voltage from solar panels into 220V AC at 50Hz**, suitable for household appliances. This conversion is achieved through the **use of transformers and inductors**, ensuring efficient and reliable power transformation. The project leverages advanced circuit design to maximize energy efficiency and performance. Both the **schematic and PCB layout were expertly crafted using KiCad**, **demonstrating proficiency in electronics design automation and resulting in a robust, sustainable solution for harnessing solar energy to power AC devices.**

MICRO
AMPERES

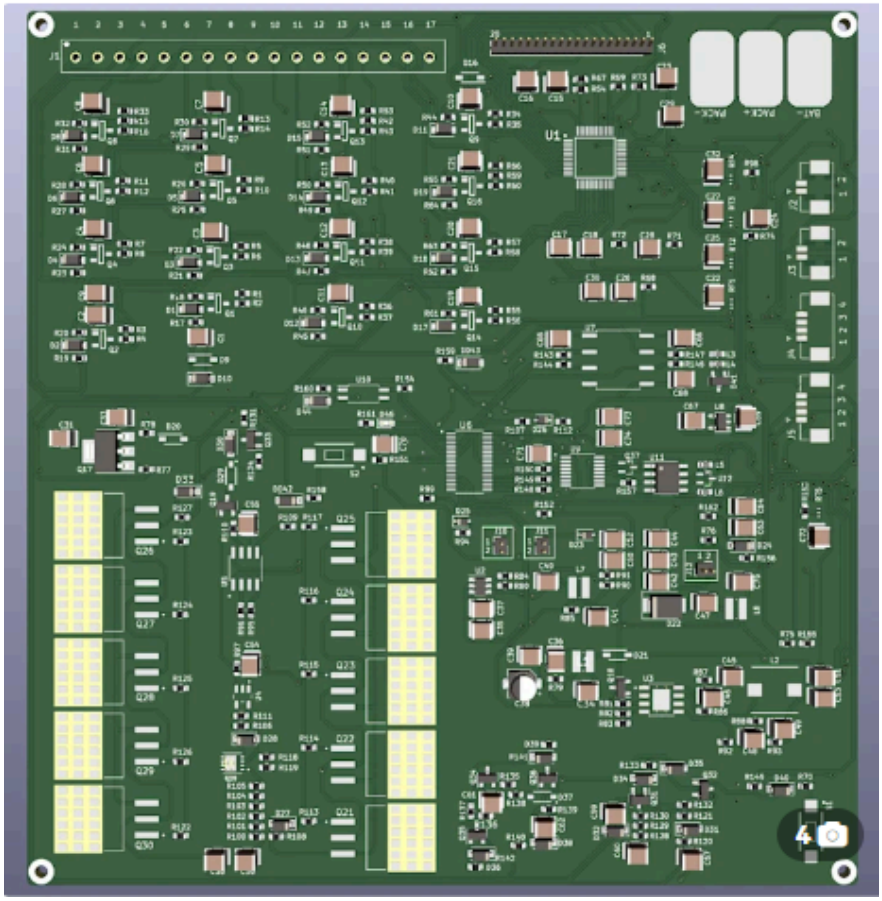






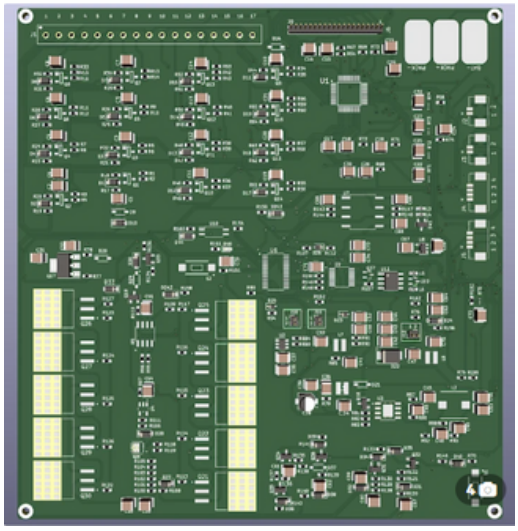
MICRO AMPERES

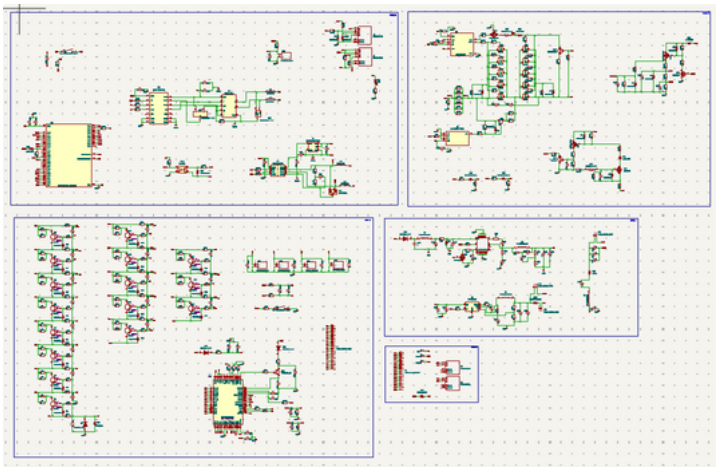
Project # 7: Solar Power Inverter with IoT

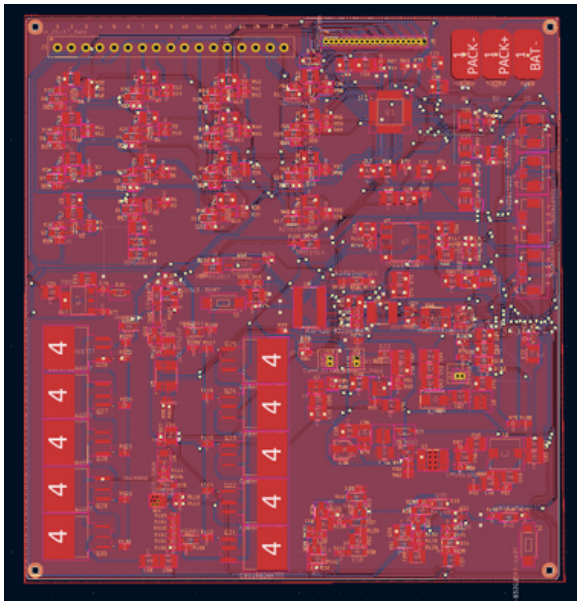


The "**Solar Power Inverter with IoT**" project **converts low DC voltage from solar panels into high-power DC voltage using MOSFETs**, enabling efficient energy transformation. Additionally, the **integration of an STM32 microcontroller allows for advanced IoT capabilities**, providing remote monitoring and control of the inverter system. This design enhances both the functionality and connectivity of the solar power inverter, making it a smart solution for modern energy management. The **schematic and PCB layout were meticulously designed using KiCad**, **showcasing expertise in electronics design automation and resulting in a robust, efficient, and IoT-enabled solar power solution.**

MICRO
AMPERES

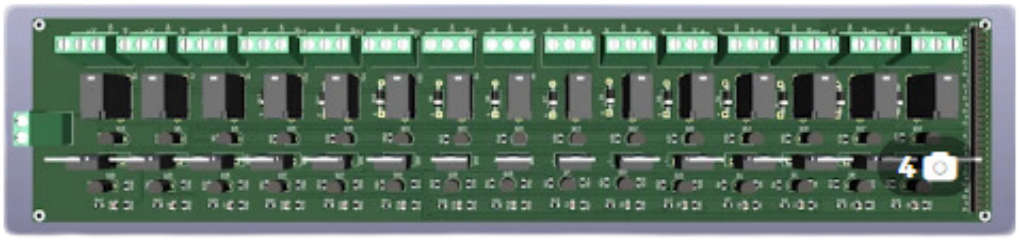






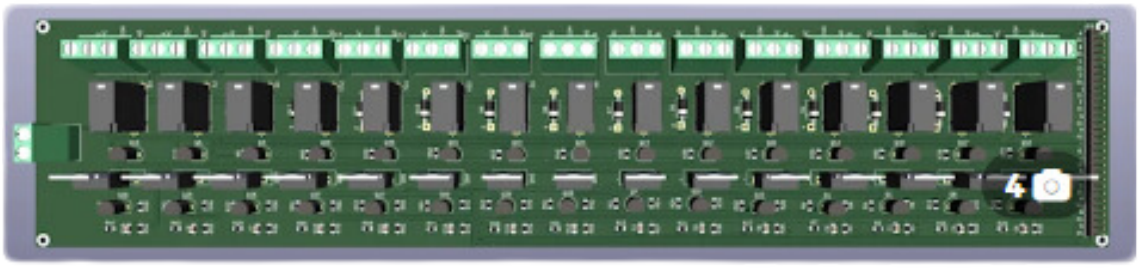
MICRO AMPERES

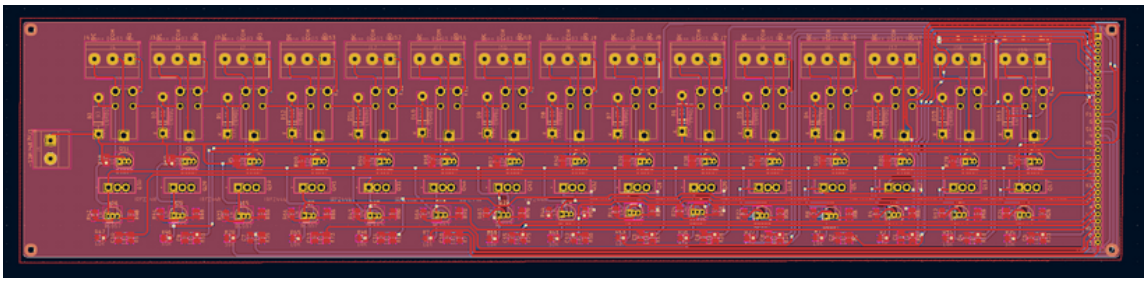
Project # 8: Home Automation with ESP32

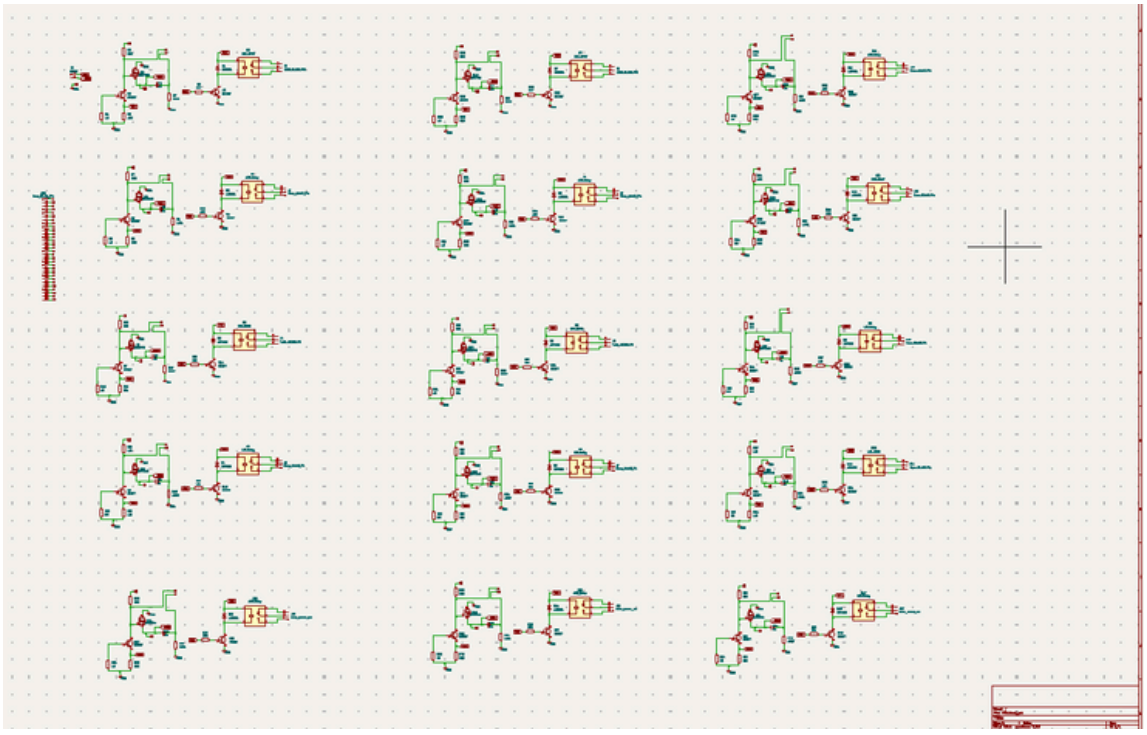


The "**Home Automation with ESP32**" project focuses on **developing a relay section controlled by the ESP32**, featuring **16 connected relays**. This setup allows for comprehensive control of multiple household appliances and devices, making it an integral part of a smart home system. The relay section is designed for reliable and efficient switching, ensuring seamless automation of various electrical loads. Both the **schematic and PCB layout were meticulously designed using KiCad**, **demonstrating advanced proficiency in electronics design automation and resulting in a robust and scalable home automation solution.**

MICRO
AMPERES

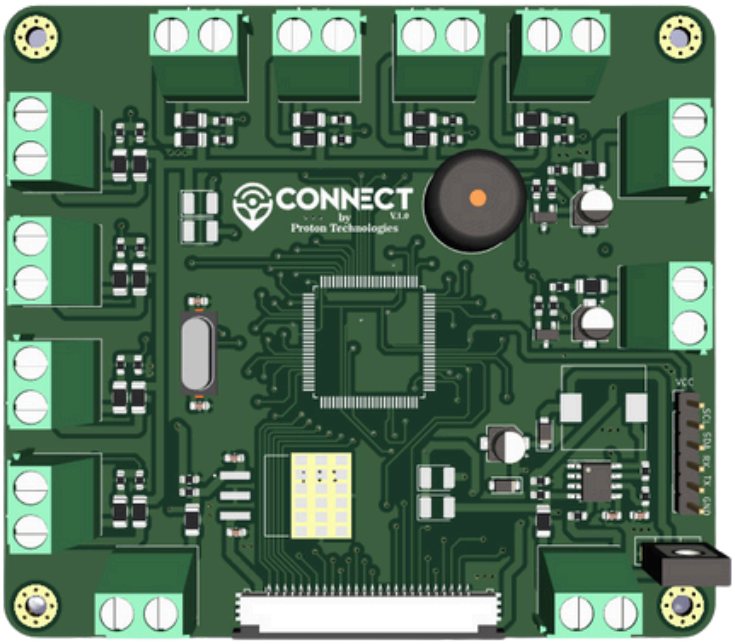






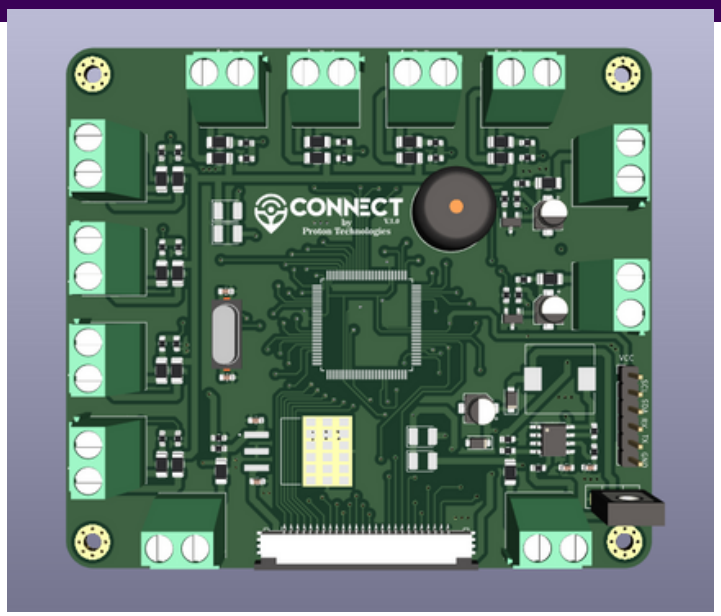
MICRO AMPERES

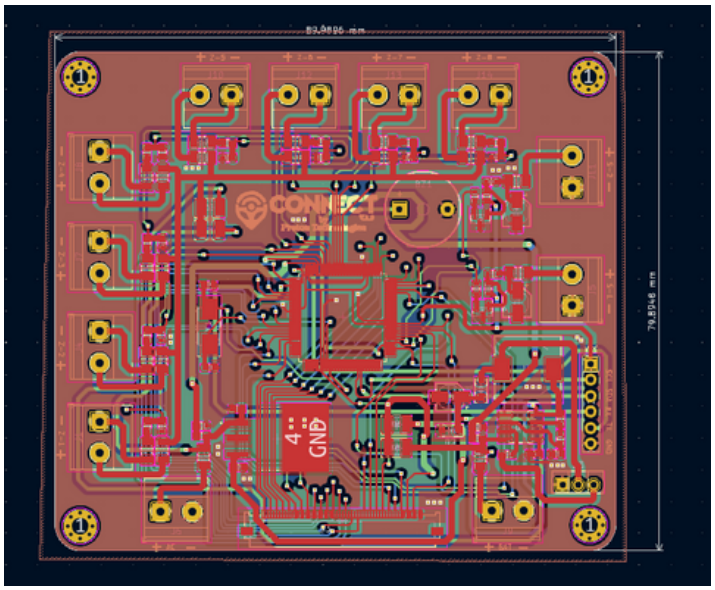
Project # 9: Conventional Smoke/Fire Detector interfaced with Arduino

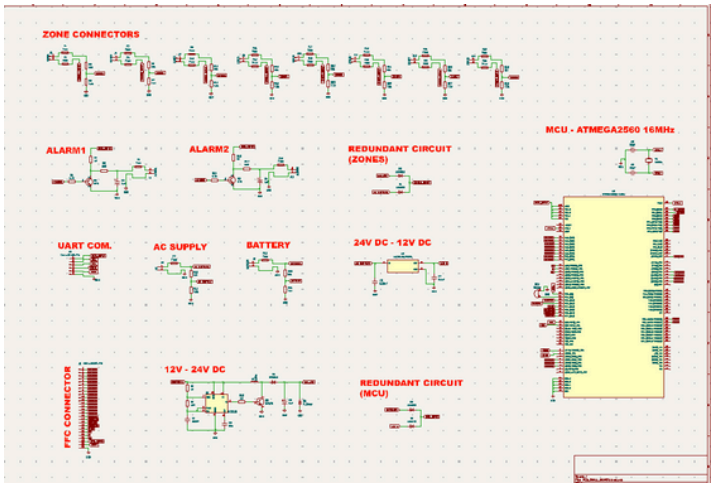


The "**Conventional Smoke/Fire Detector Interfaced with Arduino**" project integrates a traditional **smoke/fire detection** system with an Arduino microcontroller for enhanced monitoring and alert capabilities. This setup allows for real-time data collection and processing, enabling the Arduino to trigger alerts, control connected devices, or send notifications in case of smoke or fire detection. **The schematic and PCB layout were meticulously designed using KiCad, demonstrating expertise in electronics design automation and resulting in a reliable and effective smoke/fire detection solution with advanced interfacing capabilities.**

MICRO
AMPERES

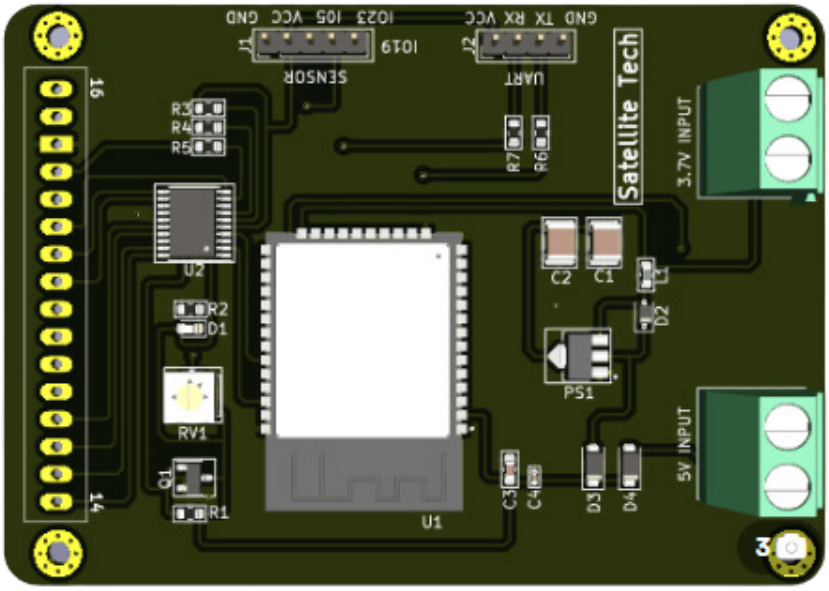






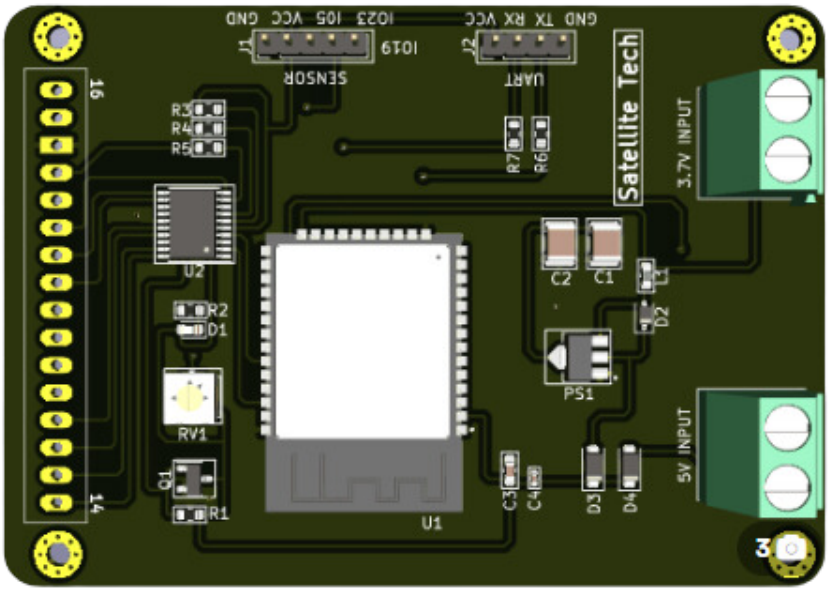
MICRO AMPERES

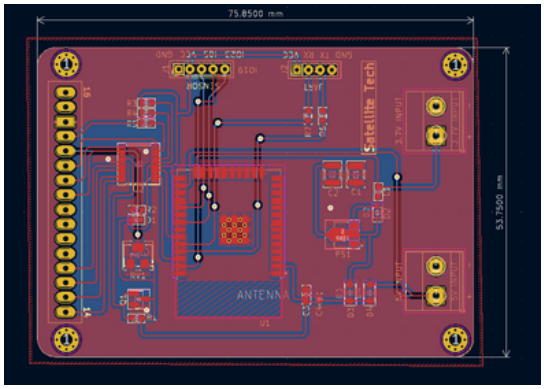
Project # 10: ESP32 Dual Power Source with LCD display

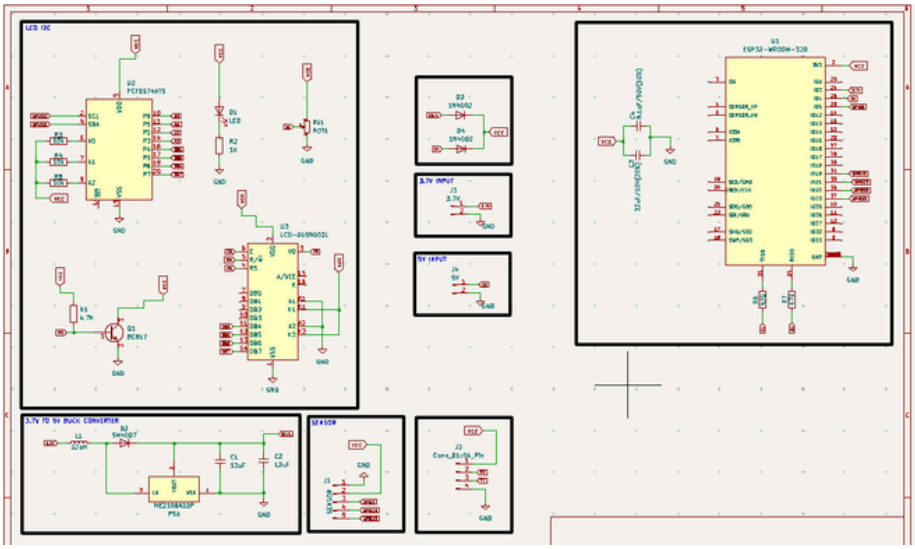


The "**ESP32 Dual Power Source with LCD Display**" project is designed to enhance ESP32-based applications with **dual power capabilities and an LCD interface**. This board can be powered by either a USB-C connection or an external 5V DC source. A **redundant power supply circuit intelligently selects the optimal power source**, ensuring stable operation. The addition of an LCD display provides a clear and convenient interface for real-time data and system status. The **schematic and PCB layout were expertly designed using KiCad, showcasing proficiency in electronics design automation and resulting in a reliable, versatile, and user-friendly development platform.**

MICRO
AMPERES

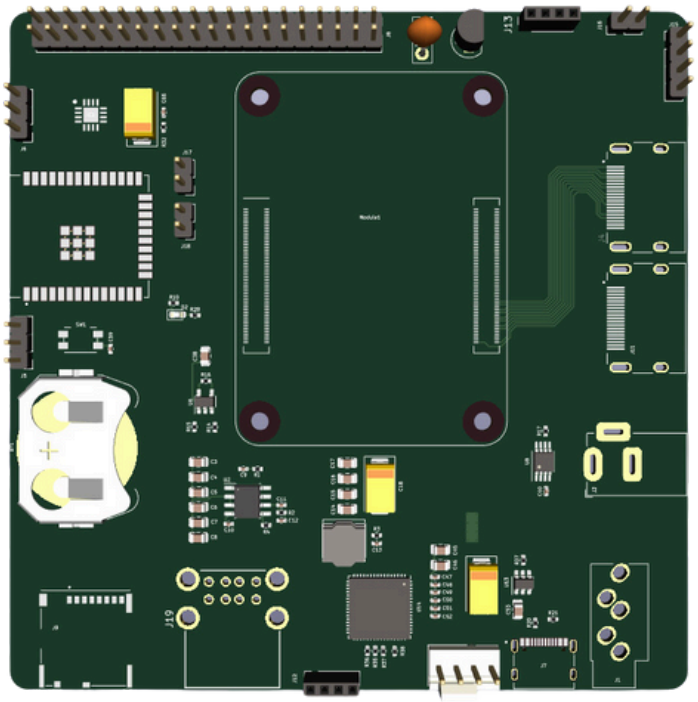






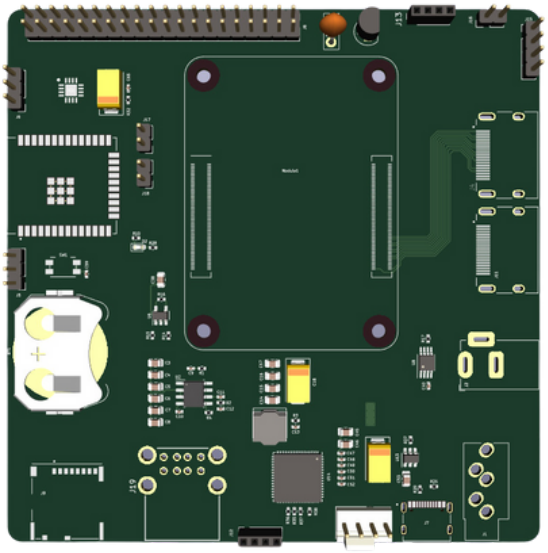
MICRO AMPERES

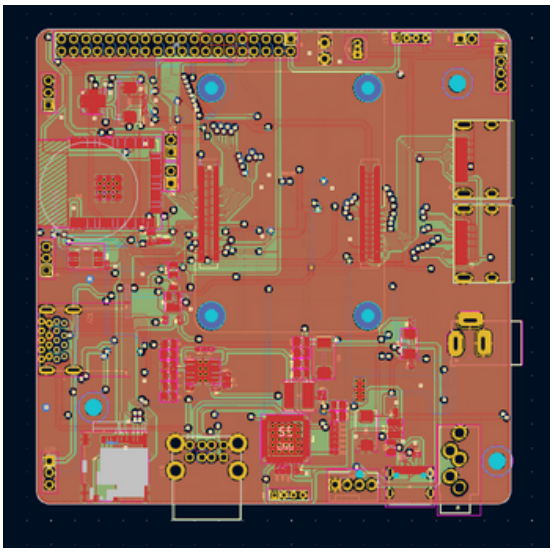
Project # 11: Interfacing Raspberry Pi with ESP32

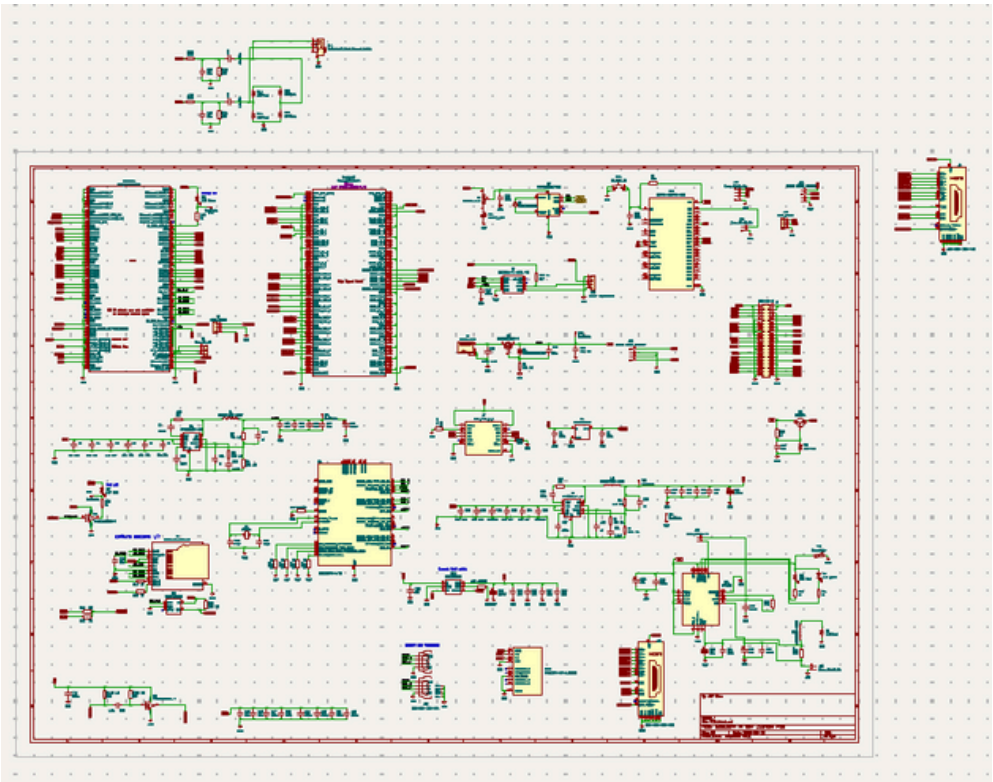


The "**Interfacing Raspberry Pi with ESP32**" project focuses on creating a robust and efficient **PCB designed in four layers** to facilitate seamless communication between a **Raspberry Pi and an ESP32 module**. This design enables the integration of the powerful processing capabilities of the Raspberry Pi with the versatile connectivity features of the ESP32, making it ideal for complex IoT applications. The four-layer PCB design ensures improved signal integrity and reduced electromagnetic interference, enhancing overall performance. The **schematic and PCB layout were meticulously crafted using KiCad, demonstrating advanced proficiency in electronics design automation and resulting in a high-performance interface solution.**

MICRO
AMPERES

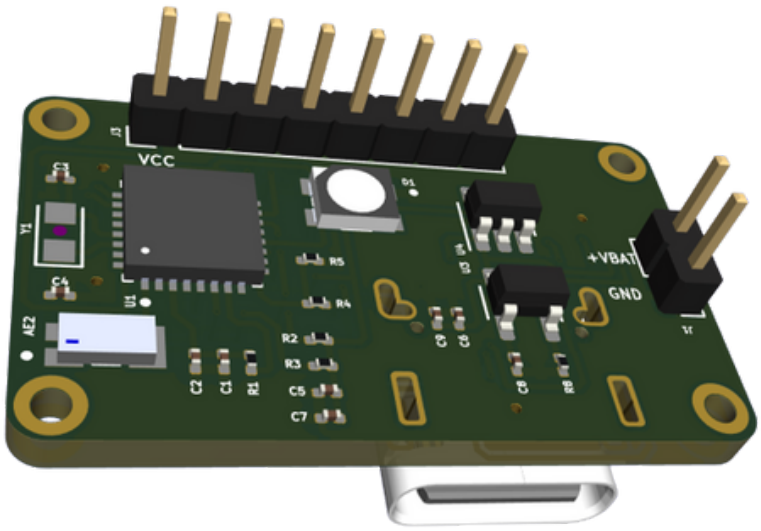






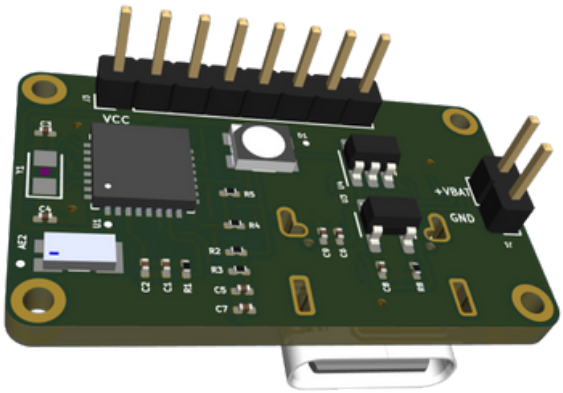
MICRO AMPERES

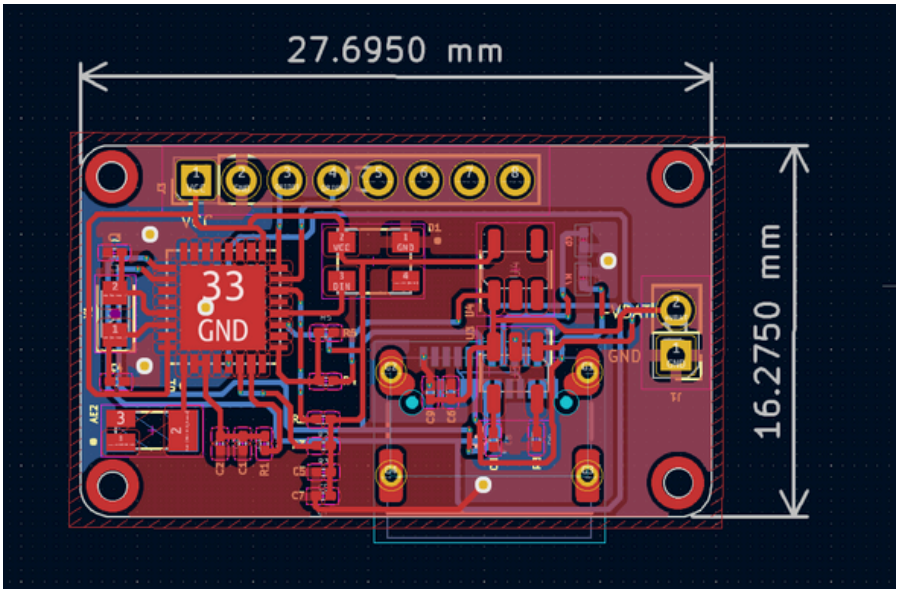
Project # 12: ES32 C3 Mini With RGB Light

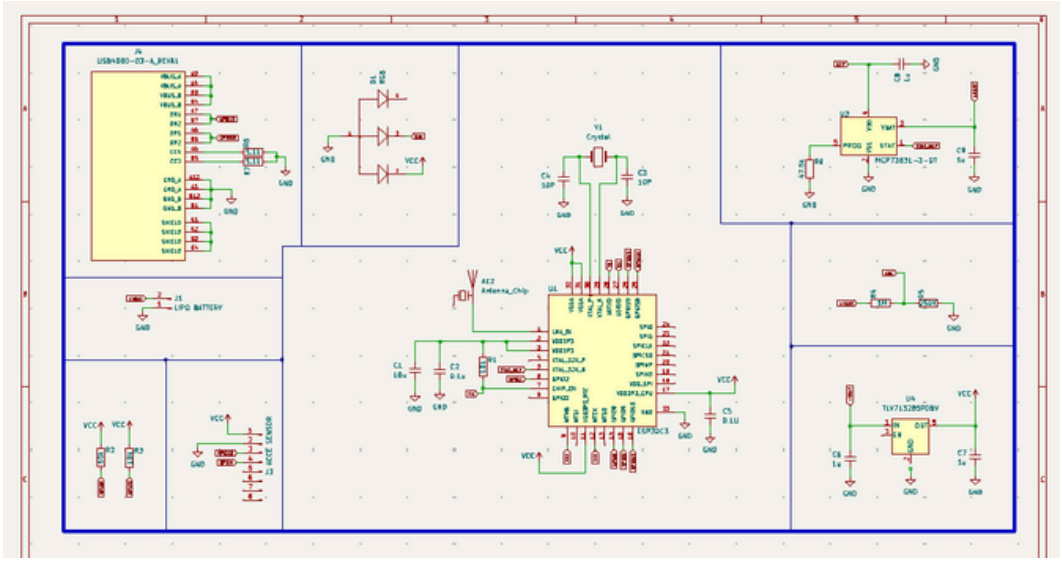


The "**ESP32-C3 Mini with RGB Light**" project integrates the **ESP32-C3 Mini** module with RGB lighting, creating a compact and versatile solution for various applications. This design allows for precise control of RGB LEDs, enabling a wide range of color combinations and lighting effects. The project highlights the capabilities of the **ESP32-C3 Mini in controlling RGB lights**, making it ideal for IoT and smart lighting systems. Both the **schematic and PCB layout were meticulously designed using KiCad, showcasing expertise in electronics design automation and resulting in a reliable, efficient, and visually appealing lighting solution powered by the ESP32-C3 Mini.**

MICRO
AMPERES

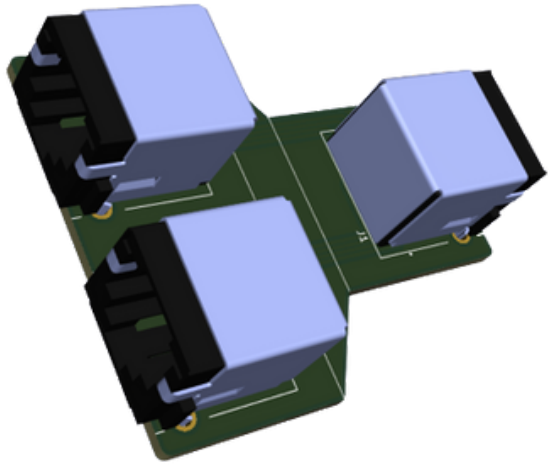






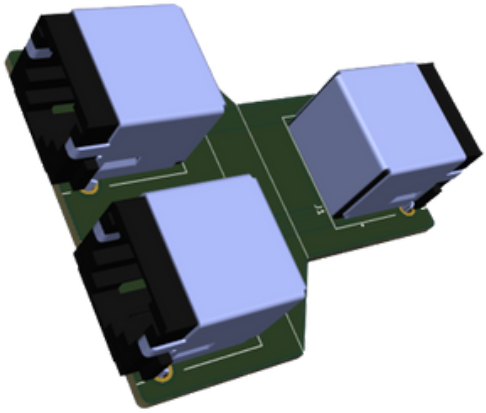
MICRO AMPERES

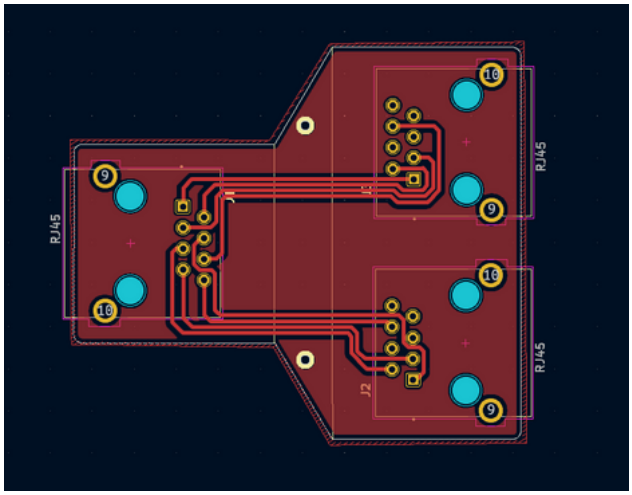
Project # 13: RJ45 Project

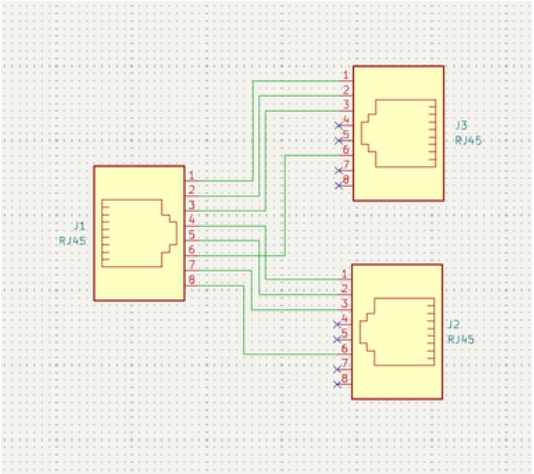


The "**RJ45 Project**" involves designing a circuit that consolidates data from **two RJ45 ports and outputs it through a single RJ45 port**. This project is essential for network management, enabling efficient data routing and integration from multiple sources. **The schematic and PCB layout were meticulously crafted using KiCad, demonstrating advanced proficiency in electronics design automation and resulting in a reliable and effective data summing solution for networking applications.**

MICRO
AMPERES

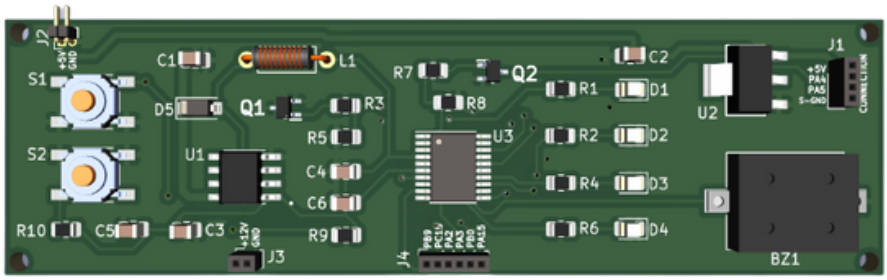






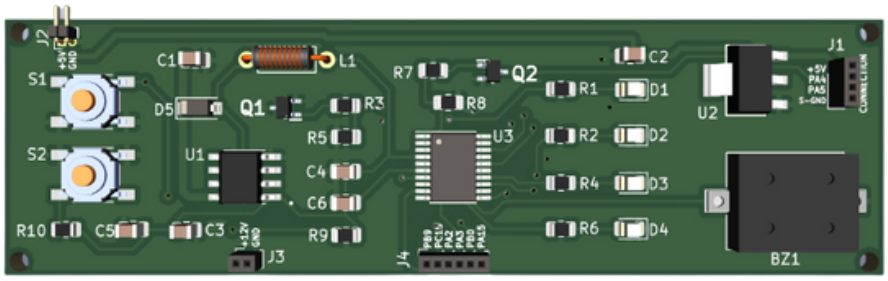
MICRO AMPERES

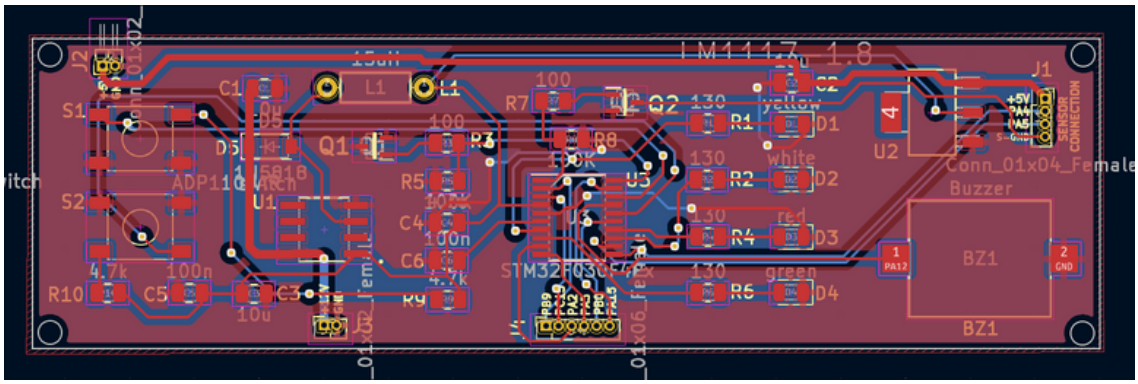
Project # 14: Milk Spillage Warning Board

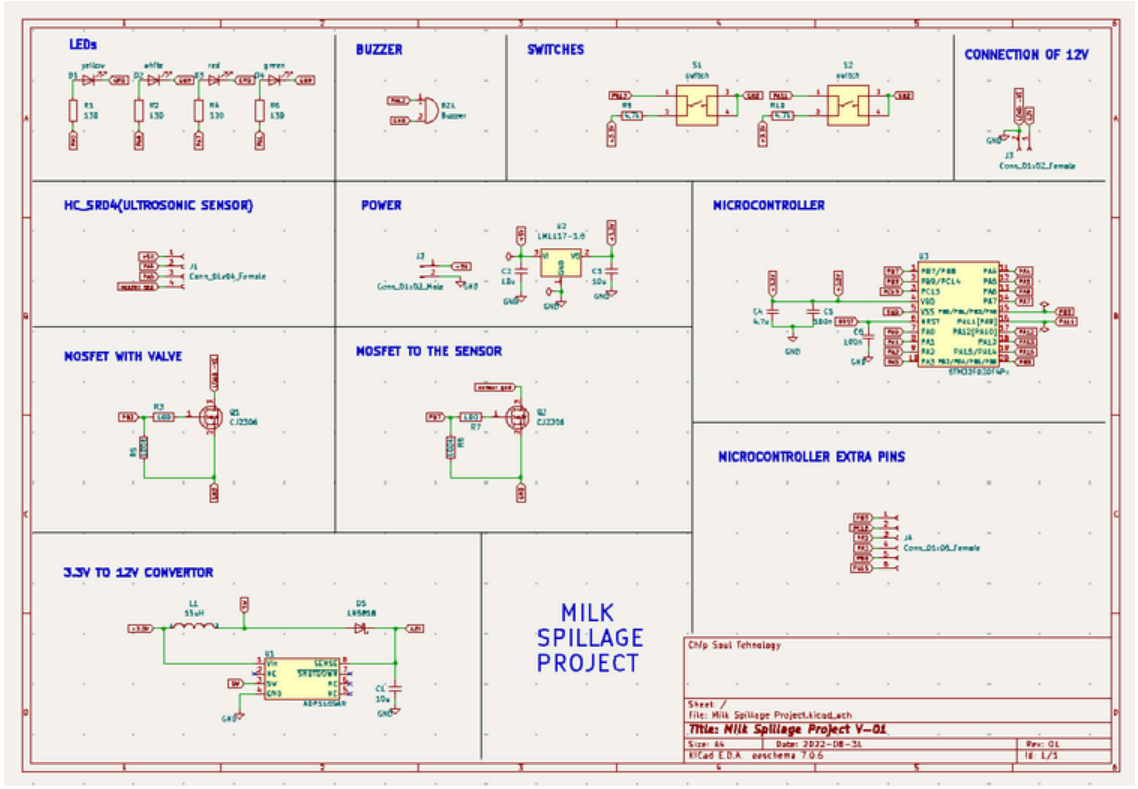


The "**Milk Spillage Warning Board**" project utilizes an **ATmega328P microcontroller and a buzzer to detect and alert users of milk spillage.** This system is designed to monitor for spills and promptly trigger an audible warning via the buzzer, helping to prevent messes and potential hazards. **The schematic and PCB layout were meticulously designed using KiCad, showcasing expertise in electronics design automation and resulting in a reliable and effective spill detection solution.**

MICRO
AMPERES

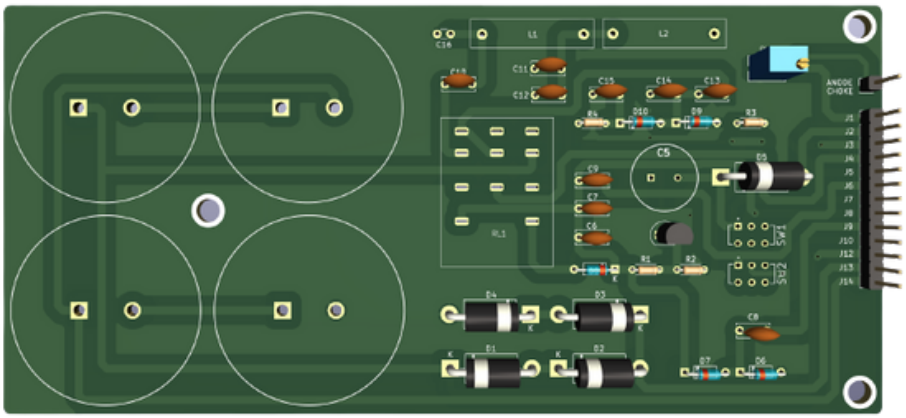






MICRO AMPERES

Project # 15: High Power Amplifier



The "**High Power Amplifier**" project is designed to deliver robust amplification for audio signals, providing high-quality sound output with substantial power. This amplifier is engineered to handle high power levels efficiently, ensuring clear and powerful audio performance**. The schematic and PCB layout were meticulously designed using KiCad, demonstrating advanced proficiency in electronics design automation and resulting in a reliable and high-performance audio amplification solution suitable for various applications, from home audio systems to professional sound equipment.**

MICRO
AMPERES