S.I.R.E.N – Fire detector and Alarm

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EGR 314: Embedded Systems Design Project II – Spring 2024

Mission Statement:

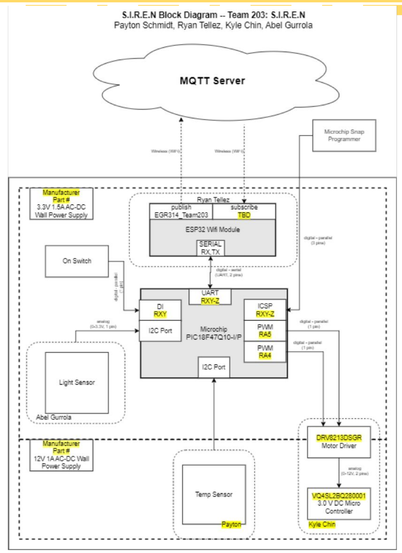
Our team is tasked with providing a device that uses digital technology to provide valuable sensory information to users for fires in either an emergency simulation or out camping/hiking.

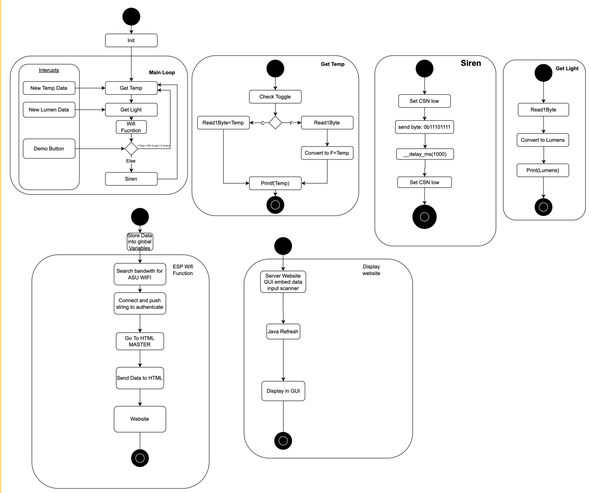
Customer Need Statement:

Campfire alarm needs: portable, weatherproof, user-friendly, low-maintenance (long battery/solar). Loud, clear alarm with multiple tones. Accurate fire detection with minimal false alarms. Optional: smartphone/emergency connectivity. Affordable, eco-friendly. Includes campfire safety education.

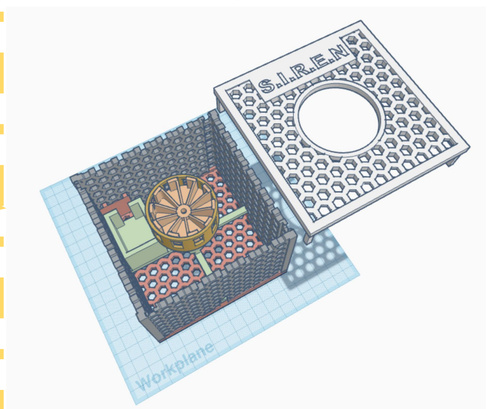
Product Requirements:

Compact, rugged design (IP rated) for weather resistance. Advanced sensors, long battery life with solar charging, and built-in speaker. User-friendly controls with status indicators, easy to activate and deactivate. Meets safety standards for camping and fire safety equipment.





Final Design Concept:



Top 5 Design Reviews

1. Ensure all necessary connections are included, especially to the esp32.
2. Address any missing components in the schematics.
3. Clarify design choices, particularly regarding microcontroller selection and capabilities.
4. Adapt the design to resolve data incompatibility issues, such as with the wind speed sensor.
5. Emphasize the importance of including interrupt functionality in the design.

- Based on the reviews, you improved your product by ensuring all connections were included, clarifying design choices, and adapting to data incompatibility issues with a wind speed sensor. These changes aimed to enhance completeness, clarity, and functionality based on feedback received.