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Wi-Fi Enabled Smart Circuit Breaker

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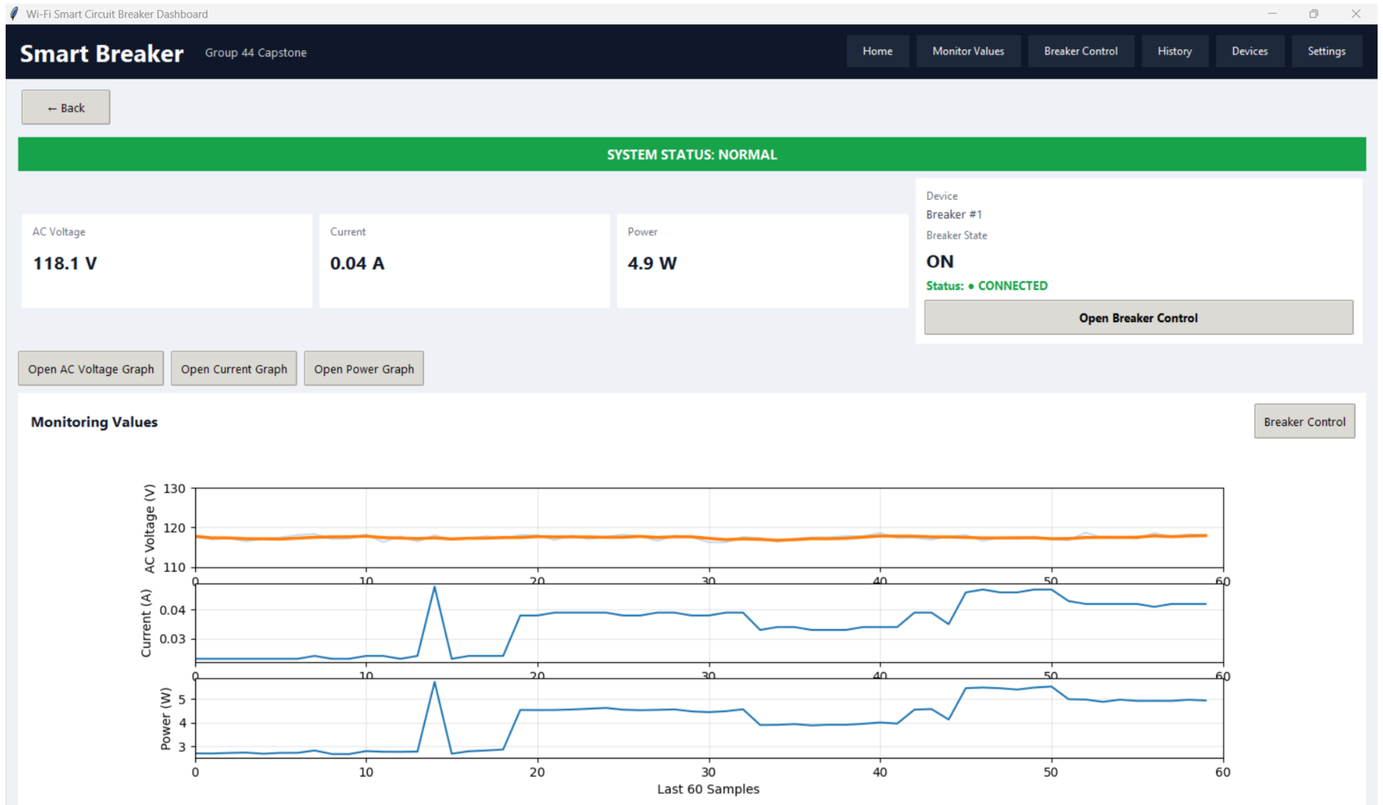
Overview

The project is a Wi-Fi enabled smart circuit breaker designed to modernize traditional residential electrical systems. The system gives users real-time visibility into electrical conditions, remote access to the breaker, and a more convenient way to monitor energy use. The goal is to create a more affordable and accessible alternative to expensive whole-home energy management systems while improving convenience, awareness, and household safety.

Main Features

- Real-time monitoring and graphing of voltage, current, and power
- Remote switching through a Wi-Fi connected application
- Device management, settings, and breaker control pages
- Configurable safety alerts with system status display

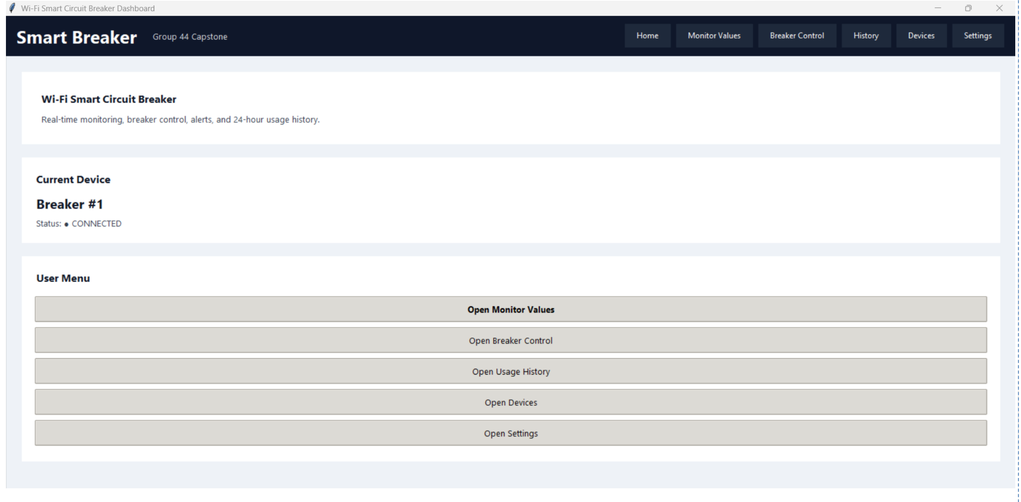


Demonstration

During the demo, we highlight how sensor data is transmitted wirelessly from the Arduino to the packaged application, where voltage, current, and power values can be viewed in real time. We also show the interface layout, including monitoring pages, device management, settings, and the breaker control workflow, to demonstrate how the system is intended to give users clearer insight and easier interaction with their electrical system.

Future?

- Ground fault detection
- Push notifications
- Mobile (Phone) application
- Network security
- Integrated back-up power supply
- Increased signal strength
- Amperage varieties
- Condensed packaging



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