

PhD Dissertation Fellowship Report

Securing IoT Devices with AI-assisted Power Auditing



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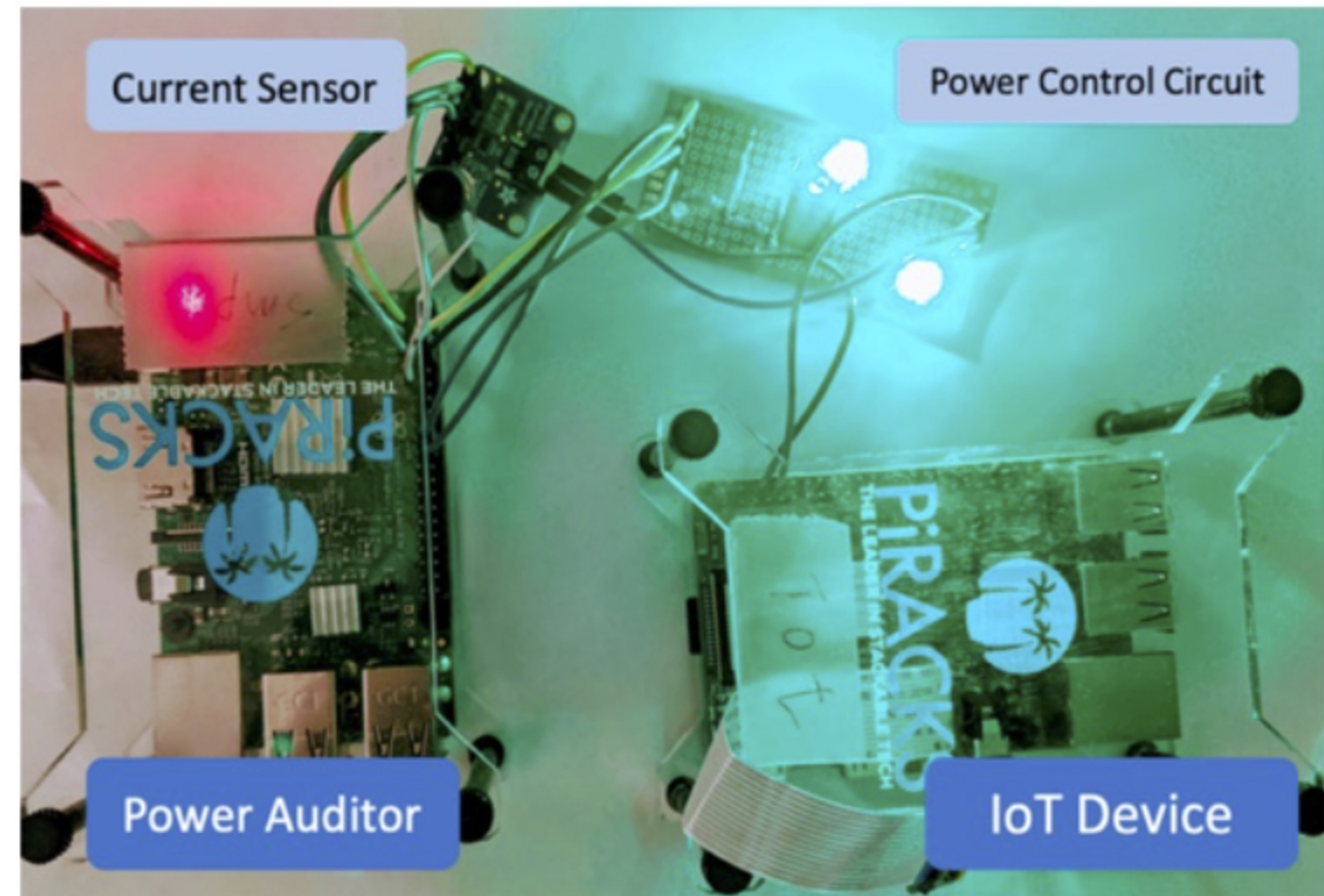
Dissertation Fellowship

Topic: IoT security & privacy through power consumption monitoring

Period of Performance: 01-Jul-2021 to 30-Jun-2023

Total Award Amount: \$50,000

Purpose: Provide a complementary side-channel monitoring environment for IoT devices



Outputs of Research

- I have published two papers in top venues and one U.S. patent.

Conference	Paper Title	Conference Date
IPSN'22	Deep Auditor: Distributed Online Intrusion Detection System for IoT devices via Power Side-channel Auditing	May 2022
SenSys'22	Light Auditor: Power Measurement can tell Private Data Leakage through IoT Covert Channels	Nov 2022

Patent No	Patent Title	Publication Date
17/669,540	Privacy-preserving online botnet classification system utilizing power footprint of IoT connected devices	Sep 2022

External Research Grants

- We hope to sell a complementary IoT device monitoring system to companies/universities.
- To expedite our business plan, I have collaborated with business experts.

Funding Agency	Project Title	Period of Performance	Funding amount
W&M Alan B. Miler Entrepreneurship Center	Tribe Venture Cohort; William & Mary Student Venture Incubator Program	Oct 2021 – May 2022	\$1,000
CCI NoVa node	Distributed Online Intrusion Detection System for IoT devices via Power Side-channel Auditing	July 2022 – June 2023	\$50,000

- As a result, we have interviewed 20+ ITS departments of Virginia universities.

Next Steps

- Delivered our first pitch to potential customers/investors on 10/26/2022.
- Extend the current system to a journal paper (Fall 2022).
- Build a homepage that includes papers and a pitch clip (Spring 2023).
- Keep contacting potential customers (Spring 2023~).

Thank you



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