

# Development of Low-cost and Robust Radiation Sensor Network

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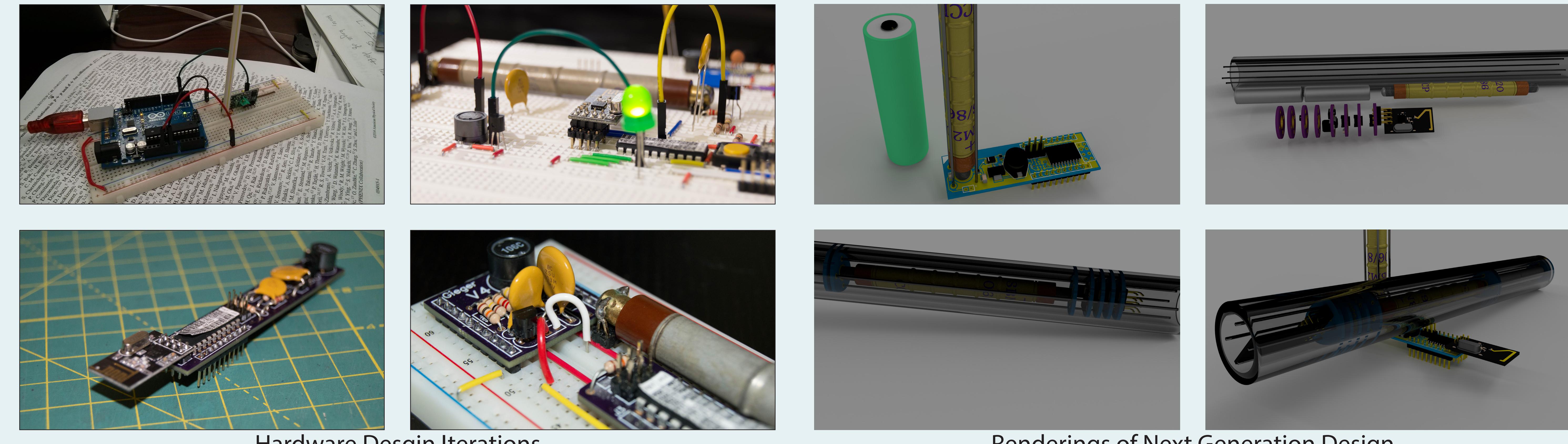
## Introduction

This poster presents the result of my senior research project at Georgia State University for developing a low-cost and robust radiation sensor network. Each sensor node has a modular design which consists of a Geiger tube and its power supply, an Atmel AVR microcontroller, and a wireless transceiver. The server is currently implemented with a credit-card size minicomputer (Raspberry Pi). Future iterations of this project will use WiFi communication, which can be easily expanded and integrated into any existing environmental monitoring network.

The sensor is designed for deployment of sensor array within a 20-meter range. One of the important applications of this project is to provide low-cost real-time monitoring of any radiation safety environment. It also has potential application in homeland security to gather data for early detection of radiological weapons.

The students in advanced physics lab will be actively involved in assembling and testing the sensor nodes and will use this system for group research projects.

This will provide students with hands on training and skill building, and it will also be a great way to introduce students to the basics of nuclear physics.



Hardware Design Iterations

Renderings of Next Generation Design

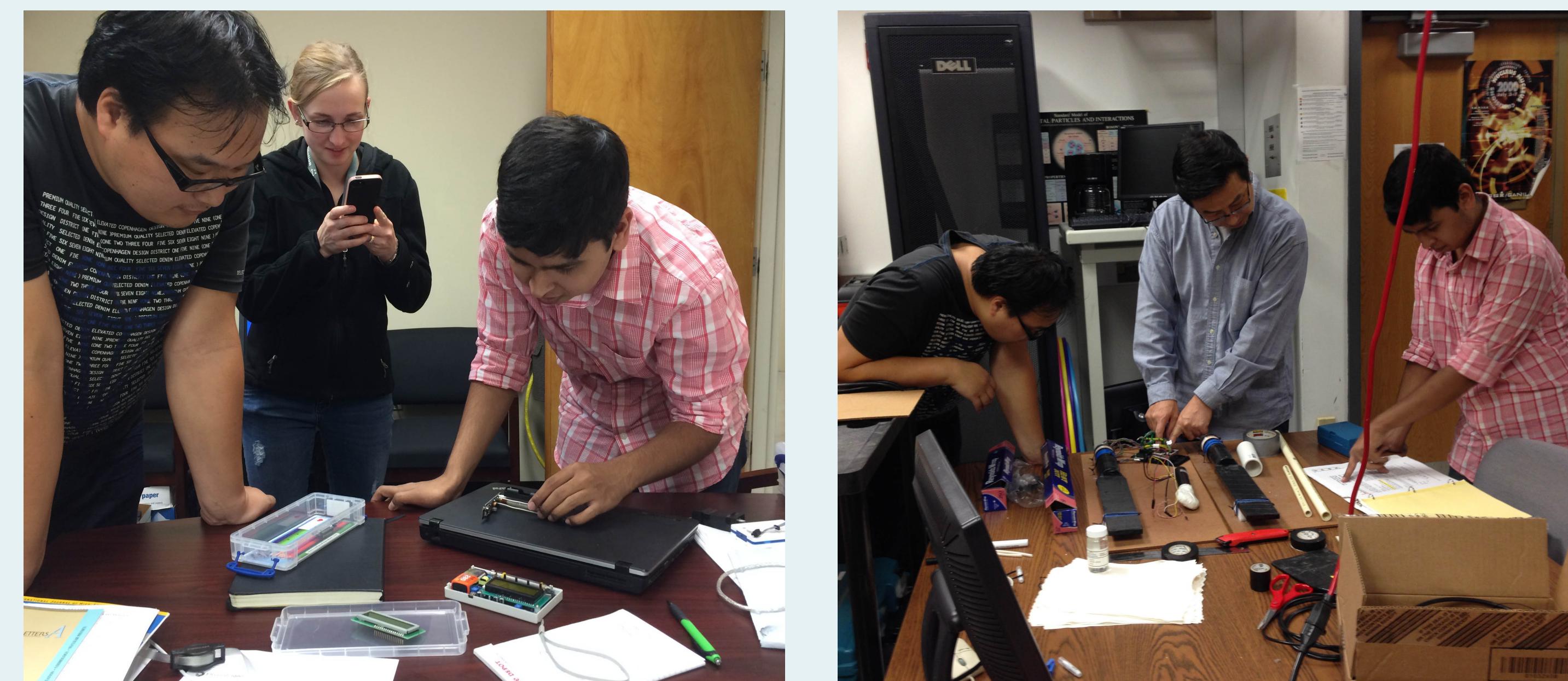
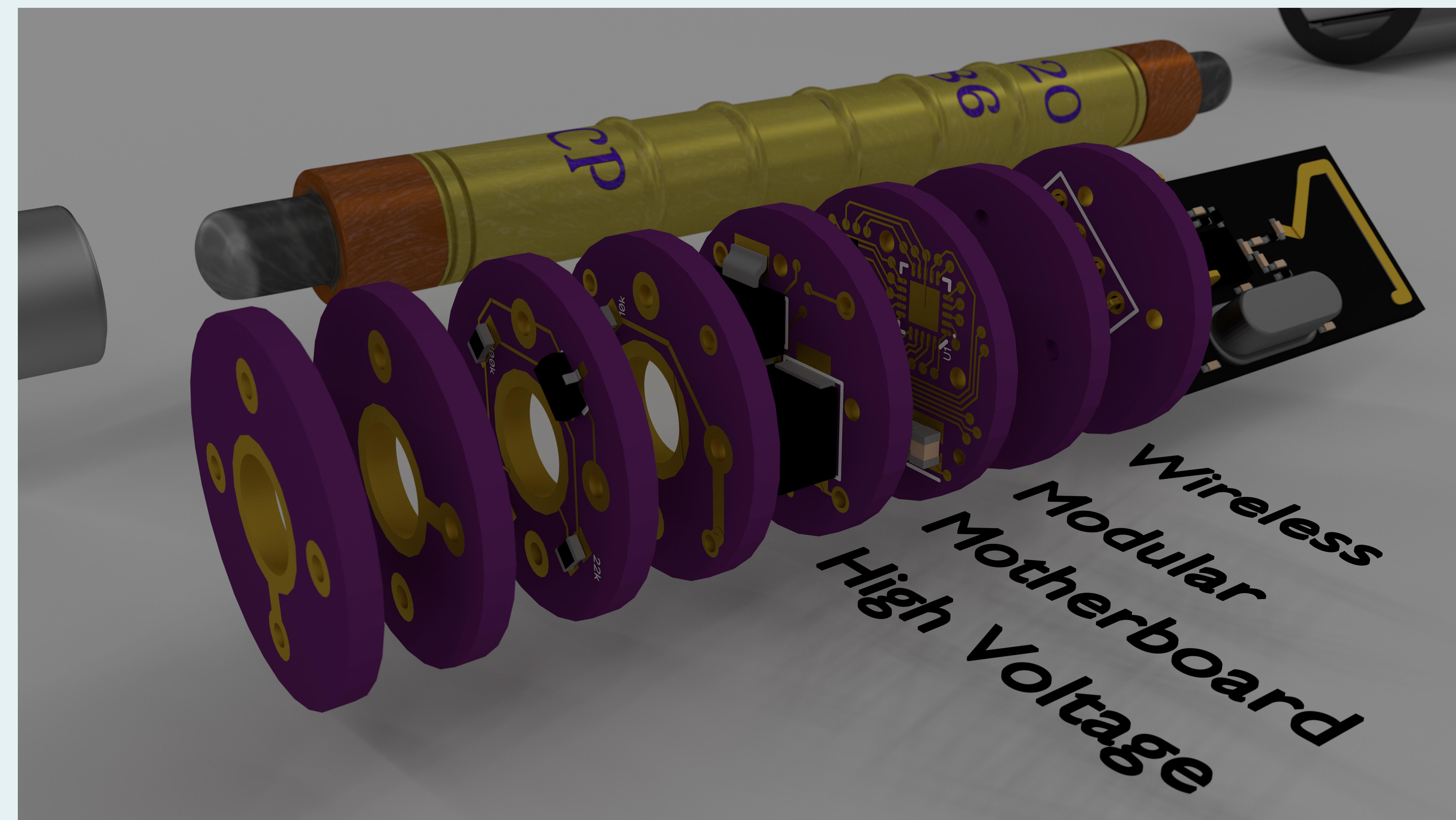
## Applications

Homeland Security  
Air and Public Transit  
GEMA, FEMA  
Education

Nuclear Power  
Policy Enforcement  
Hazardous Material

## Next steps

Features of the next generation include the ability to leverage existing Wi-Fi network, increased robustness, compact construction, modular design, and easy assembly. Node production in progress.



Working with advisor and graduate students