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Abstract

The world runs on multitudes of IoT (Internet of Things) devices:

- Smart home devices
- Wifi extenders, speakers
- Cars and kitchen appliances

For nearly three decades software defined radios (SDRs) have been revolutionizing the way these IoT devices communicate. Leading the charge into this new era of is our project sponsor, General Dynamics Mission Systems.

New solutions must be:

- Smaller
- More efficient

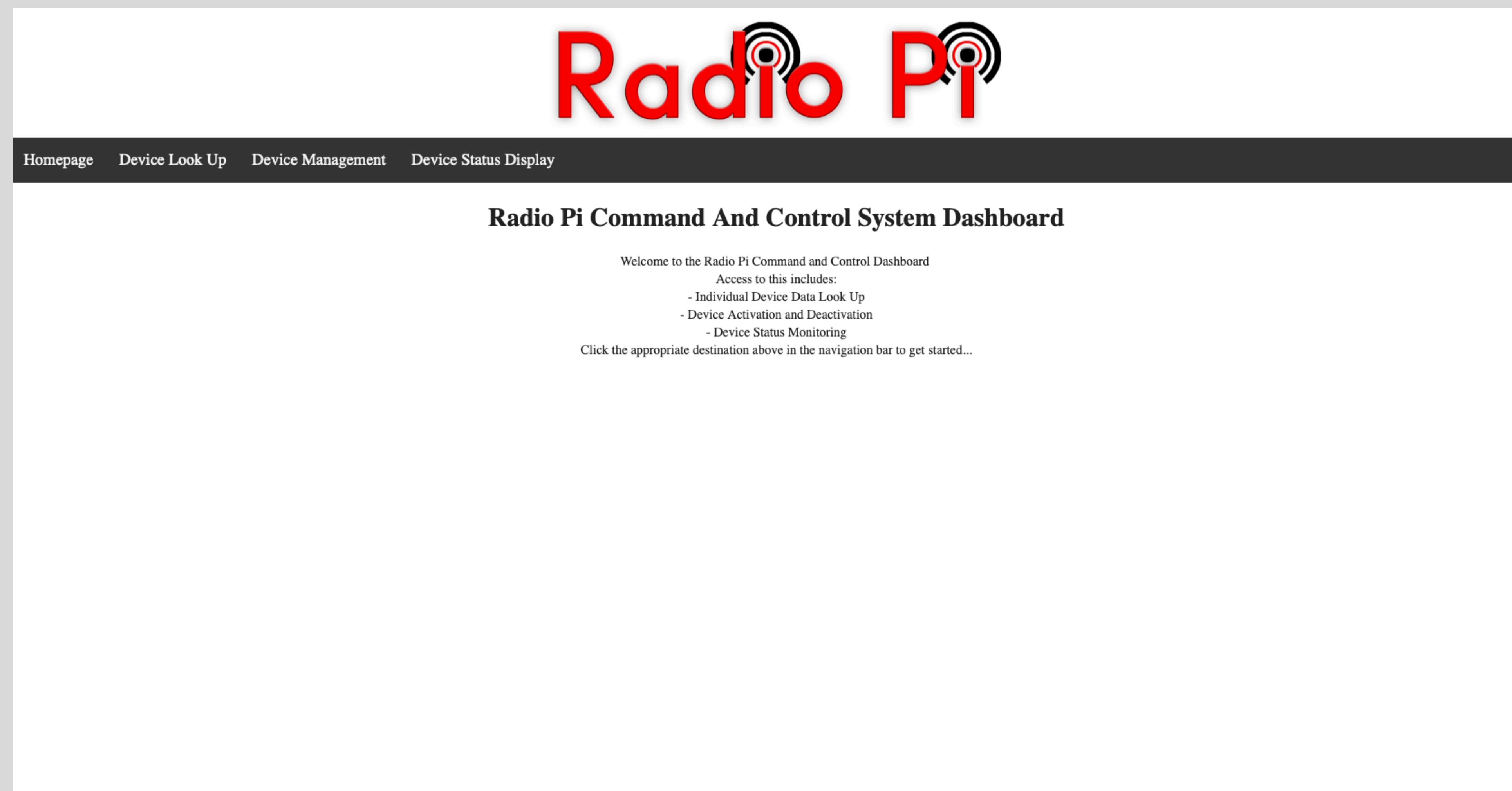
Current solutions are built on legacy software and are prone to:

- Failure
- System crashes
- Memory overloads
- General decay.

The Project - Requirements

- An extremely small, fast, and efficient database
- A custom networked connection between devices and dashboard
- A slick, highly usable UI solution for device management
- Running on a linux based OS
- A secure, stress tested, scalable solution for a redesigned C2 System for embedded projects, delivered to GDMS

Final Product



Design

We came up with a simple web page with three main functional sections

- Embedded device lookup
- Embedded device activation and deactivation
- Embedded device status view



GENERAL DYNAMICS
Mission Systems

Process

1. Initial team formation
2. Project assignment
3. Requirements acquisition
4. Planning
5. Prototyping
6. Development
7. Testing
8. Delivery

Our solution has been built using client provided Raspberry Pi 3 B+ devices



Conclusions

Based on what we were able to achieve over the course of the 2020 - 2021 academic year, we believe that with some reconfiguration, our solution for a redesigned command and control system for embedded products would vastly improve upon the current solution General Dynamics Mission Systems, and our client Randy Derr, currently have.