Argus

Senior Design I
Fall 2018

General Information

Team Members

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Project Adviser

- Dr. Dharma Agrawal

Abstract

- More and more devices are emitting wireless traffic
  - Having access to these devices' locations can be extremely useful
- GPS is inefficient and unreliable
- Argus collects location information using devices' WiFi connection
  - Uses signal strength and time of flight to obtain an accurate reading

Project Background

Purpose

An application that will allow for indoor location tracking where GPS is not reliable, providing a cross-platform user interface.

Goals

- A listing of devices on a network including MAC address, hostname, and manufacturer
- For each device, it's approximate location listed, as well as a visual rendering
- Live cross-platform interface with location mapping and notifications
- Location accuracy within 3 m

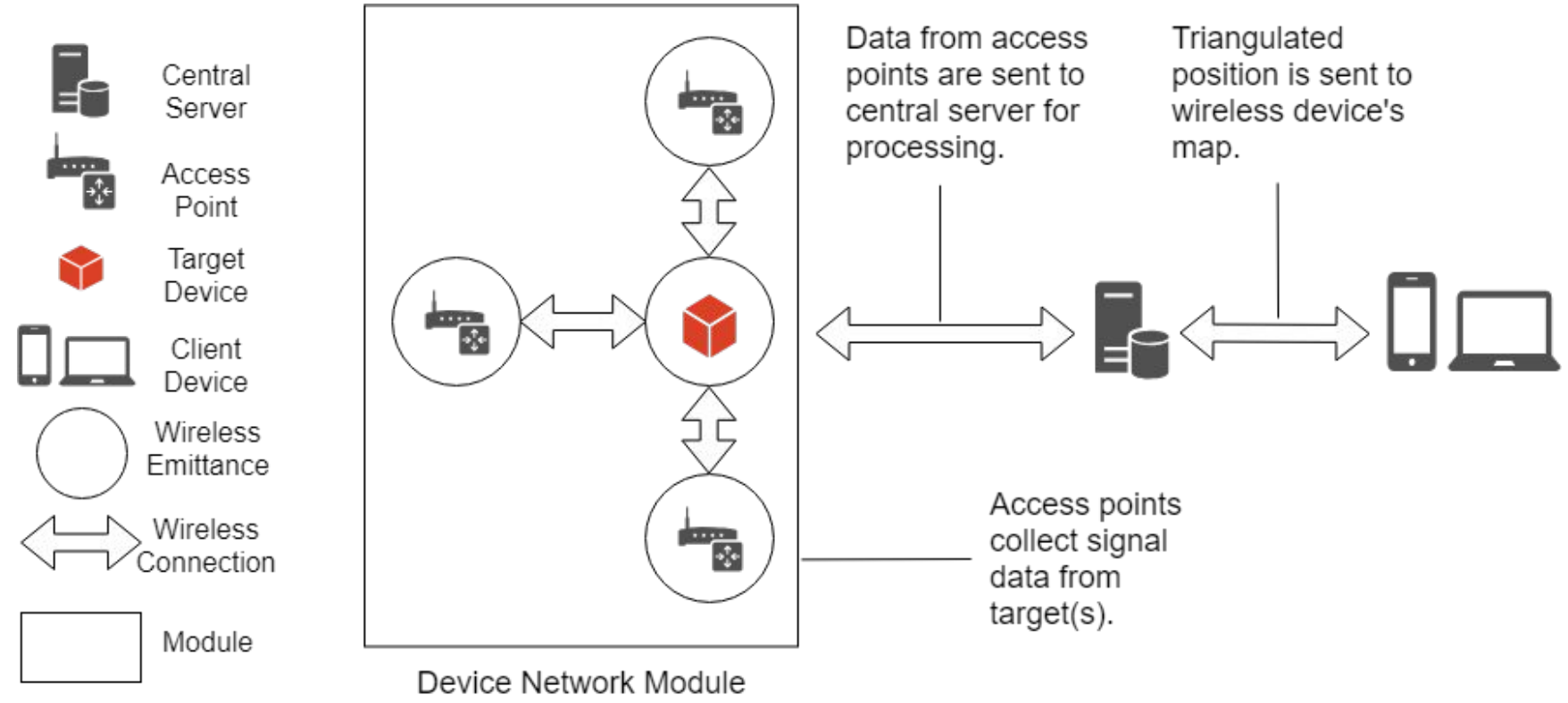
User Stories

As an IT specialist, I want to view the devices on my network to obtain full transparency over it.

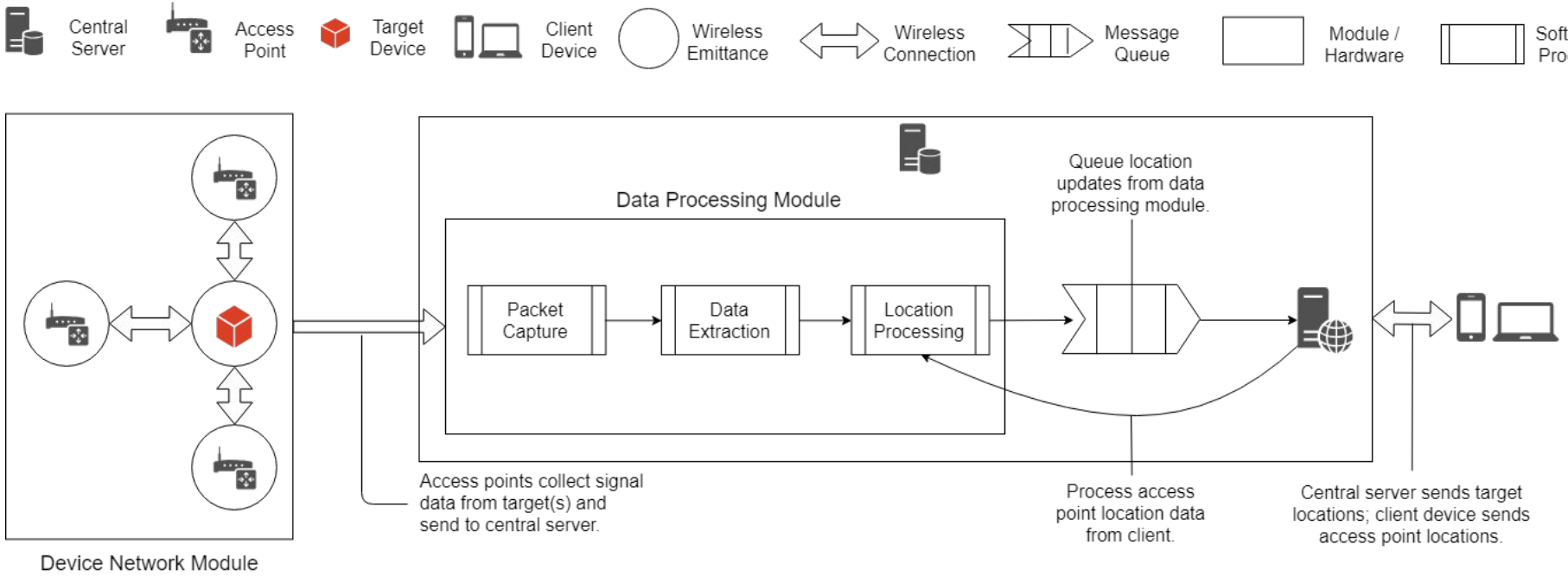
As a warehouse manager, I want to track the location of IoT devices in my warehouse to monitor their actions.

As a conference planner, I want to view movement patterns of conference attendees to determine hot spots in the building(s).

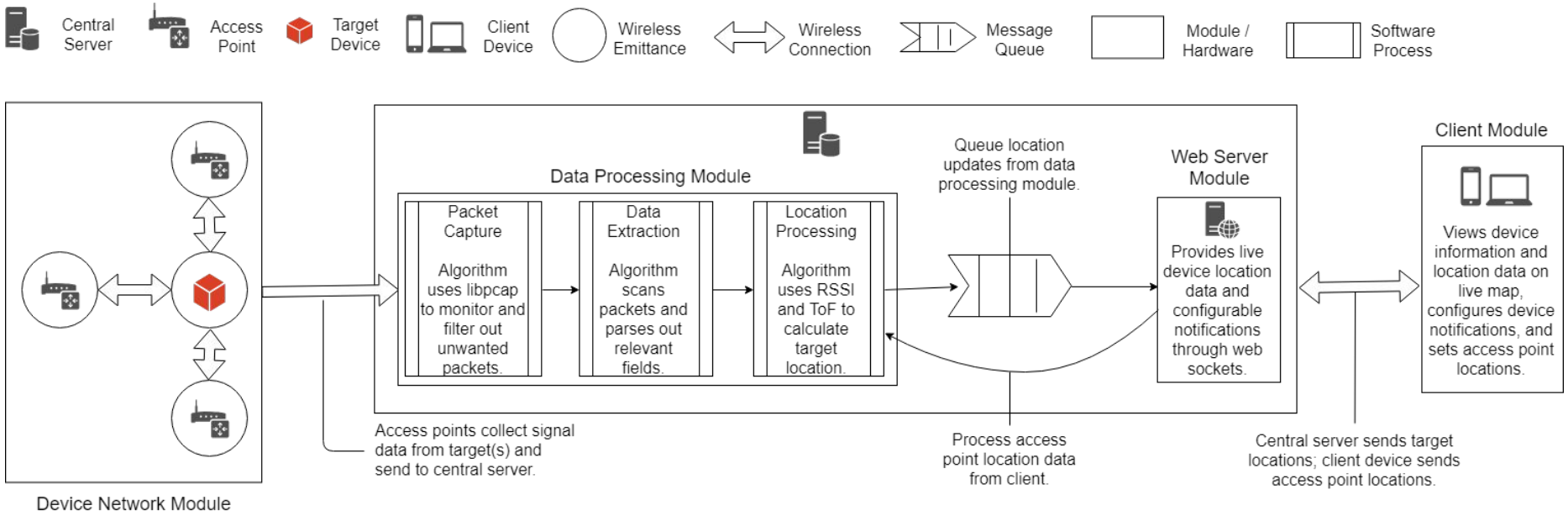
High Level Design



Mid Level Design



Low Level Design



Project Progress

Current State

- Project has been divided into individual modules
- Next steps will be:
  - Determining hardware requirements
  - Developing individual modules
  - Stitching dataflow together for a working prototype

Accomplishments

- Conceptual design and implementation plan
- Inefficient and unrealistic alternative solutions exhausted
- Researched wireless networking protocols
- Project title

Division of Work

Matt: Infrastructure, triangulation and location processing

Anthony: Data collection and processing, testing and documentation, team management

Patrick: Communications module, web application back-end, data management

Kyle: Web application front-end, notification management

Q&A and Feedback