Project Title: Smart Parking System with Raspberry Pi & AWS
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Course: CLDE2291 – Capstone Project
Date: May 21, 2025

Executive Summary

Urban campuses like Dunwoody College of Technology face challenges with inefficient parking lot usage and a lack of real-time space tracking. These issues lead to wasted time, driver frustration, and logistical complications.

To address this, I designed and deployed a smart parking system using a Raspberry Pi, Arduino, and Hall Effect sensor, integrated with AWS services. The system detects when vehicles enter or leave a parking space and sends updates in real-time to AWS IoT Core. Data is stored in DynamoDB, and a web interface visually displays the current layout and availability of parking spots.

Key features include:
- Real-time parking updates through MQTT
- Scalable, cloud-based infrastructure using AWS IoT Core, Lambda, and API Gateway
- Dynamic HTML/CSS front-end that reflects live spot changes
- Lightweight, cost-effective components using Raspberry Pi and Arduino

This solution delivers operational benefits to both parking managers and drivers, reduces time spent searching for parking, and provides a foundation that can scale across entire campuses.