PennState

CMPSC 441: Artificial Intelligence (Fall 2023)

Final Project:
Parking Space Tracker

Gabriel Nulman
Sarim Kazmi

Abstract

The demand for efficient parking space management at educational institutions is on the rise, particularly at campuses like PSU Abington where parking can often be a challenge for students and staff. This paper outlines the development of an AI-driven application designed to track and provide real-time information on available parking spaces across various lots at the PSU Abington campus. The application uses advanced search algorithms to efficiently identify the availability and location of parking spots, providing users with time and distance estimates to the nearest free space. This innovative approach ensures that users spend minimal time and distance in finding a spot, allowing them to focus more on their academic and professional commitments.

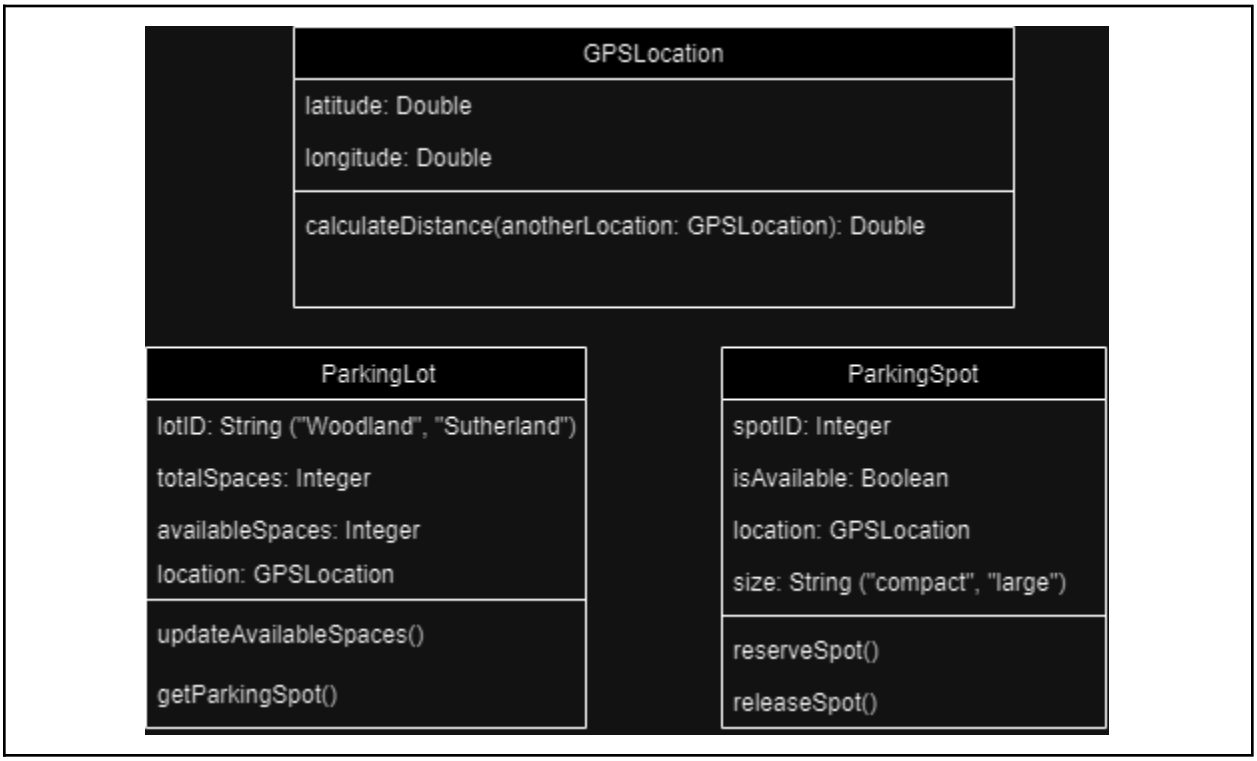
Objectives

AI Integration: Implement advanced AI algorithms to track and update the status of parking spaces in real-time.
Search Algorithm Development: Design and deploy search algorithms that can swiftly identify available spots across all parking lots and present the closest option to the user.
Time and Distance Estimation: Incorporate features that provide users with estimated time and distance to the identified parking spot from their current location.

Goals

Efficiency in Parking: Reduce the time spent and distance traveled by users in searching for a parking spot.
Real-time Data Accessibility: Offer users real-time data on parking spot availability across all lots (A, B, C, D) at PSU Abington.
User-friendly Interface: Design an intuitive user interface that provides easy access to relevant parking information.
Sustainable Campus Traffic Flow: By streamlining the parking process, aim to reduce the carbon footprint caused by vehicles idly searching for spaces.

Class Diagram



Contribution

Sarim: Work on the ParkingLot and GPSLocation classes
Gabriel: Work on the ParkingSpot and GPSLocation classes