

ParkShark Administration: The Future of Campus Parking Management

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Overview

The ParkShark Patrol iPad application and the ParkShark Admin Web Portal are auxiliary applications for the ParkShark service that assist in the monitoring and management of parking lots, parking passes, and traffic policy enforcement on campus.

The ParkShark Patrol iPad app provides an enhanced parking policy enforcement experience for traffic patrol officers, with the ultimate goal of ensuring a safer and easier parking experience on campus for students and faculty, and the ParkShark Admin Web Portal is designed to streamline parking management on campus for the officers and dispatchers working at the police headquarters.

By combining real-time monitoring, ticket management, and communication features, the ParkShark Admin Web Portal and ParkShark Patrol iPad app offer a scalable and user-friendly solution for police departments in addressing the challenges of campus parking management.

ParkShark Patrol iPad App

- Displays a map of the officer's current location and the live status of all parking spots within a chosen radius of the officer
- Select a spot to view more information about the spot and about the vehicle parked there
- Update the details of a spot if officer determines the information is incorrect
- Fill out and print tickets, at the officer's discretion, for vehicles that violate campus parking and traffic policies
- App sends ticketing information through to the ParkShark Admin Web Portal
- View a map with the current occupancy of all lots and spots on campus
- Receive campus alerts and closures sent from police dispatchers through the ParkShark Admin Web Portal.

ParkShark Admin Web Portal

- View the statuses of all lots and spots on campus
- Close entire parking lots and send an announcement to campus about lot closure
- Close specific rows or individual spots
- Assign new ParkShark tags, as well as void and replace lost or damaged ones
- Receives all parking tickets from ParkShark Patrol iPad app to monitor and update ticket statuses for unpaid, paid, and voided tickets
- Send alerts to all ParkShark users, such as notifications about lot closures, inclement weather, campus events, and policy updates.

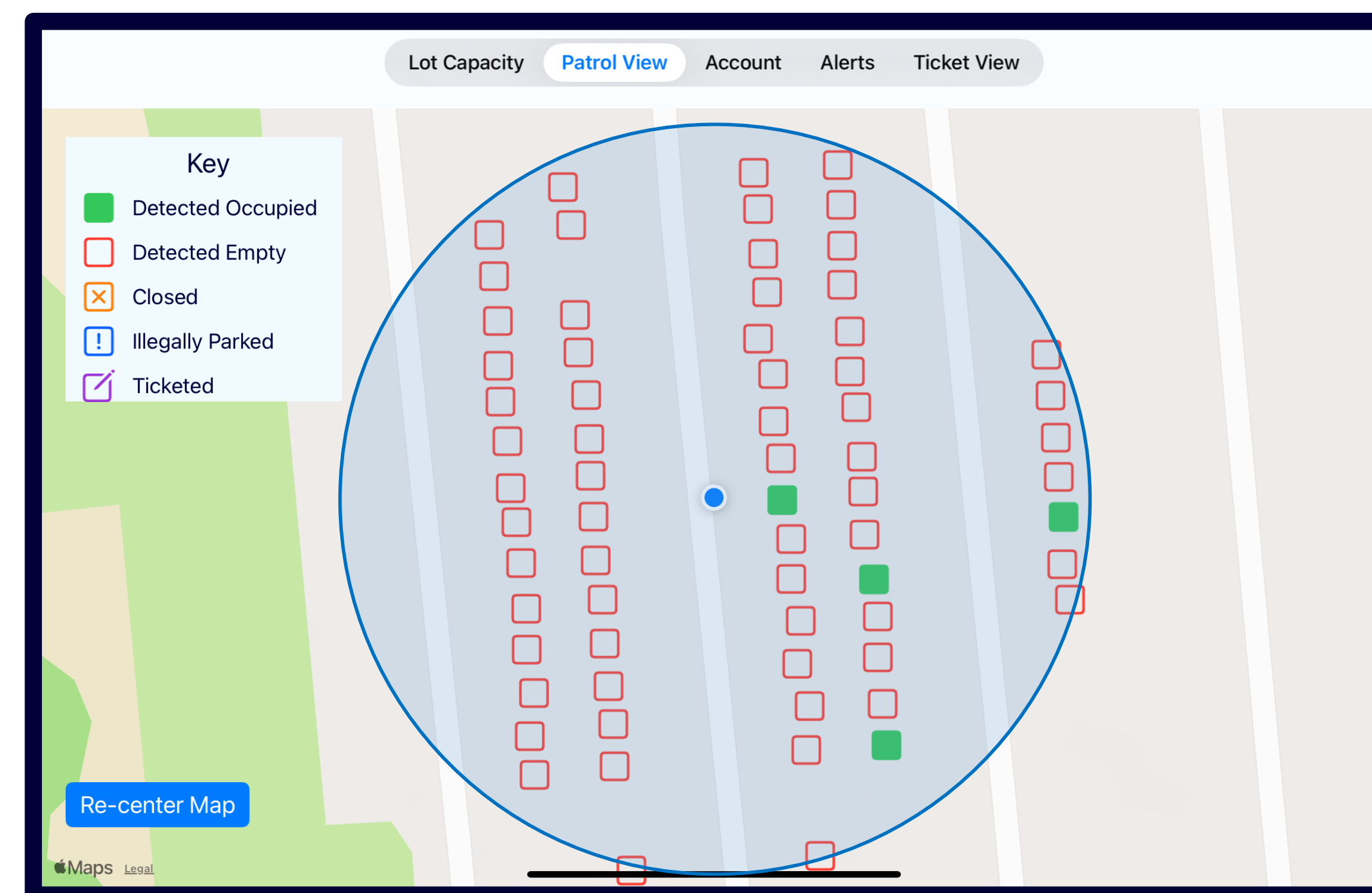
iPad Implementation

- Swift and Swift Storyboard in Xcode
- UIKit, CoreLocation, MapKit, CoreData
- ImagePicker to add in-app photo-taking functionality for issuing tickets
- Conversion of pictures to data to allow for storage in ParkShark Intelligence server
- Data exchange with custom REST API hosted on ParkShark Intelligence server
- Collaboration with MUPD and Communications Department to improve UI, branding, and functionality
- Efficiency of data manipulation on frontend, UI responsiveness with live data



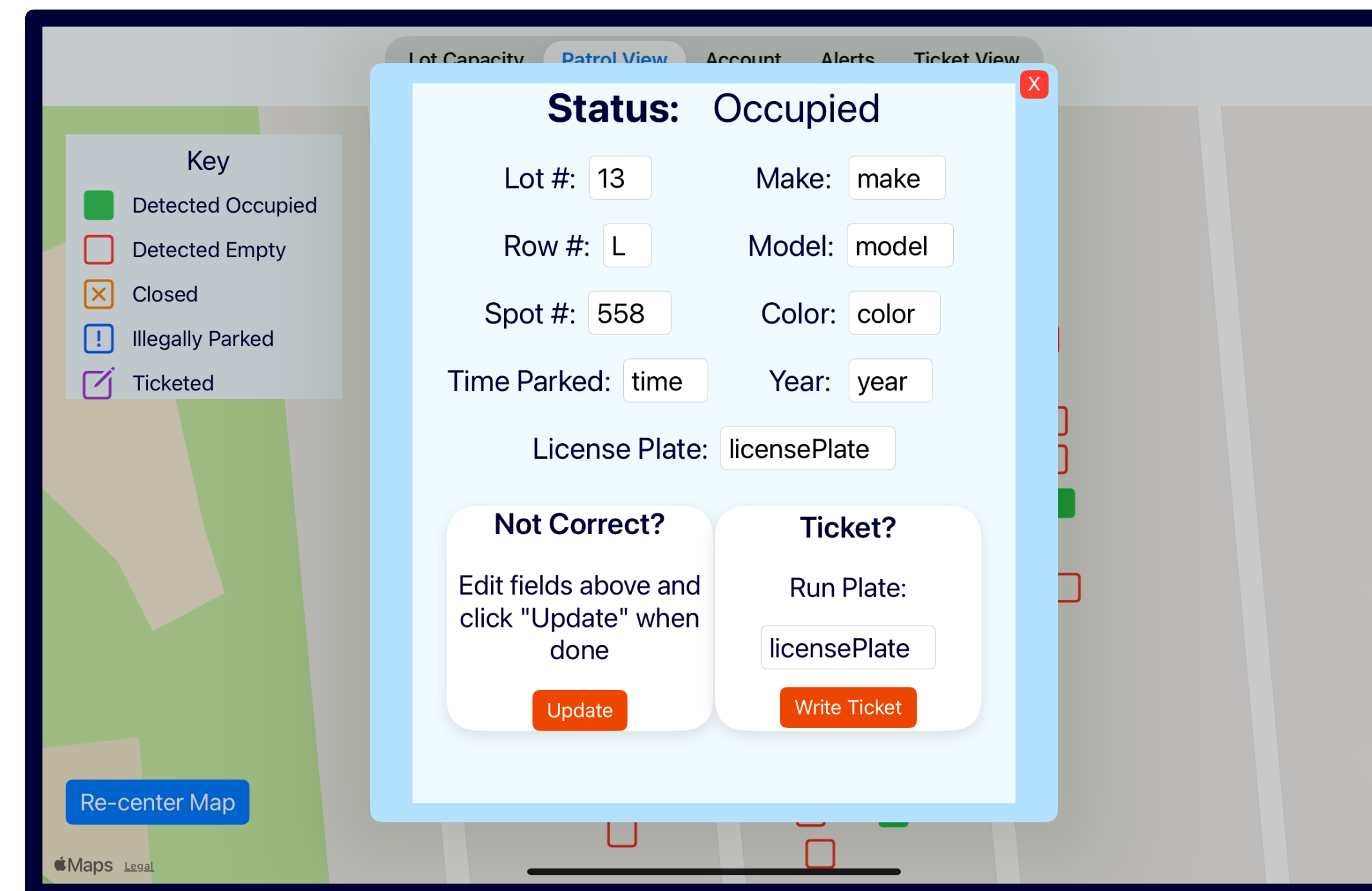
Patrol View

Map displaying the statuses of every parking spot within a chosen surrounding radius of the of the patrol officer's vehicle, accompanied by a key with the color-coded symbols for each spot status



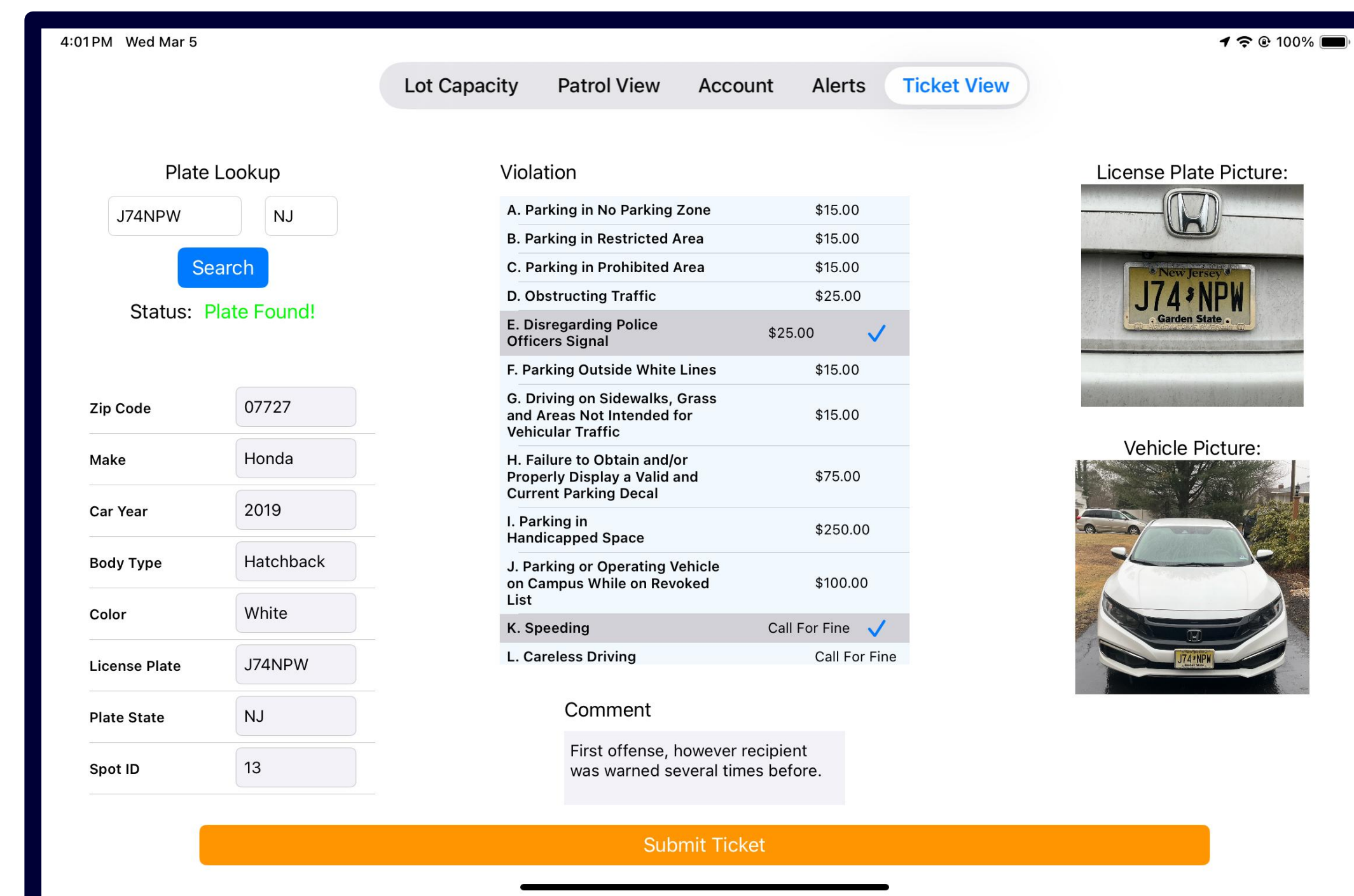
Specific Parking Spot Information

An officer can tap on the symbol for a parking spot to view more information about the spot, and may choose to correct any incorrect information or write a ticket for that spot's vehicle



Ticket Submission

Form that acts as a parking/traffic ticket, allowing the officer to look-up a license plate in the ParkShark system to auto-fill any known info, choose one or many violations, and submit photos of the license plate and vehicle



Web Portal Implementation

- Node.js JavaScript runtime environment
- Vite React Framework for faster development
- Leaflet JavaScript library for interactive maps
- Tailwind CSS for rapid custom UI development
- Axios HTTP client for API requests
- PostCSS for transforming CSS with JavaScript plugins
- Data exchange with custom REST API hosted on ParkShark Intelligence server

Lot Capacities Dashboard

Home dashboard displaying the live capacity percentages of each parking lot on a campus map



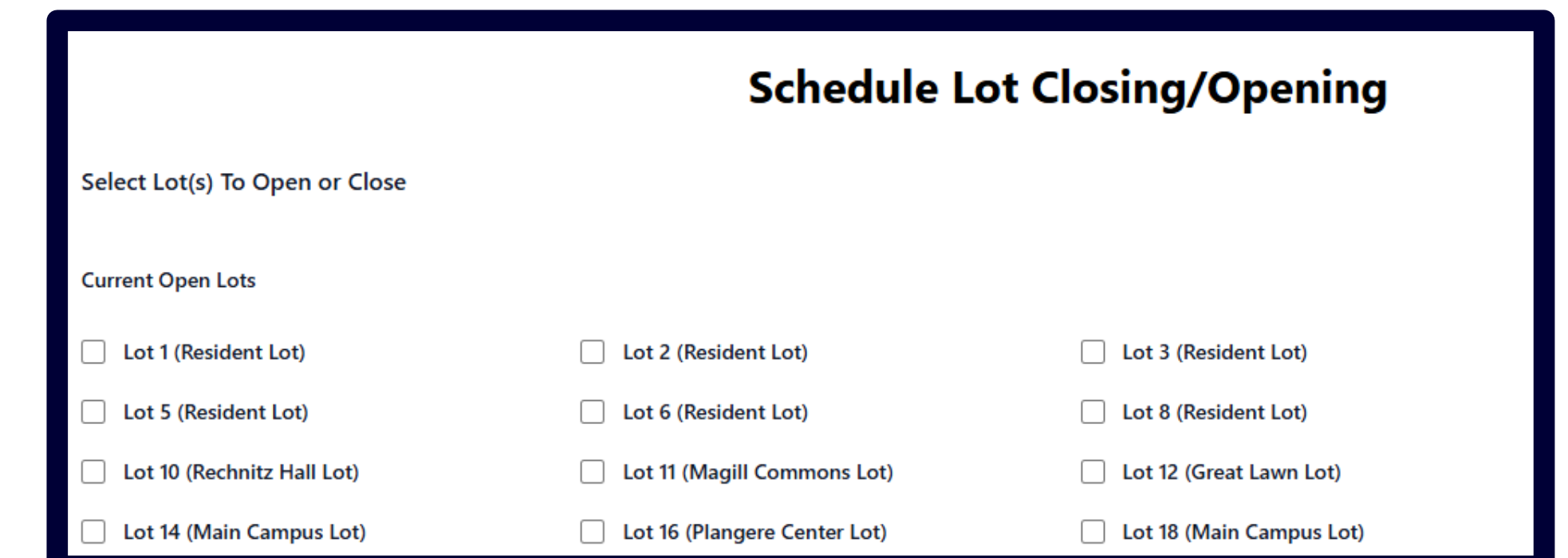
Lot Details & Close Individual Spots

View essential lot information and spot statuses, with the ability to close individual/group of spots via a selection box



Lot Closure Management

Ability to schedule the closing of entire parking lots and send an announcement to campus, or re-open previously closed lots



Campus Alert Management

See the history of all alerts that have been sent or scheduled, with the ability to edit each individual alert's information

View All Alerts						
#	ALERT TITLE	ALERT	UPLOADED BY	POSTED DATE & TIME	EFFECTIVE FROM	EFFECTIVE UNTIL
1	Feb 27 Demo Alert	This alert is for our Feb 27 Demo	ONE, ADMIN	2/27/2025, 9:58:59 AM	2/28/2025	3/1/2025
2	Feb 20 Demo Alert	This alert is for the Feb 20 Demo	ONE, ADMIN	2/20/2025, 11:00:20 AM	2/20/2025	2/22/2025
3	Test Alert 02/08/2025	Sending demo alert	ONE, ADMIN	2/8/2025, 11:10:23 AM	2/8/2025	2/9/2025
4	Hawk Hawk Demo Alert (updated)	Demo Alert	ONE, ADMIN	2/7/2025, 11:58:11 AM	2/7/2025	2/9/2025
5	Hawk Hawk	Lot 14 will be closed from 02/06/2025 - 02/06/2025	ONE, ADMIN	2/6/2025, 4:39:27 PM	2/6/2025	2/6/2025
6	Updated: Test Alert Jan 6	Testing ParkShark Admin Alerts	ONE, ADMIN	1/6/2025, 1:47:29 AM	1/6/2025	1/6/2025



Acknowledgements

Thank you to Dr. Raman Lakshmanan, Dr. Robert Scott, Prof. Amanda Stojanov, Guy McIlroy at Koliada LLC, Alison Gilbert at the Center for Entrepreneurship, Andrew McGovern, Gianna Piroso, Davian Albarran, Tanner Purdy, CS Senior Project and SE Software Practicum class, and the Monmouth Department of Computer Science and Software Engineering.

