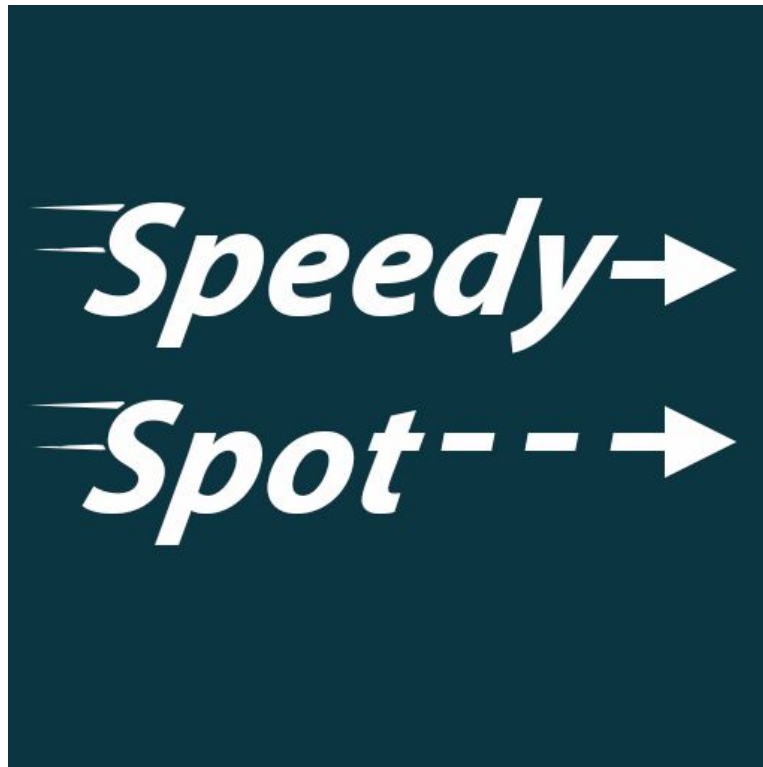


SpeedySpot

Software Design Document



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Abstract: This document describes the software design for SpeedySpot, an Android and iOS mobile application designed to alleviate parking congestion at Stony Brook University.

1. Introduction

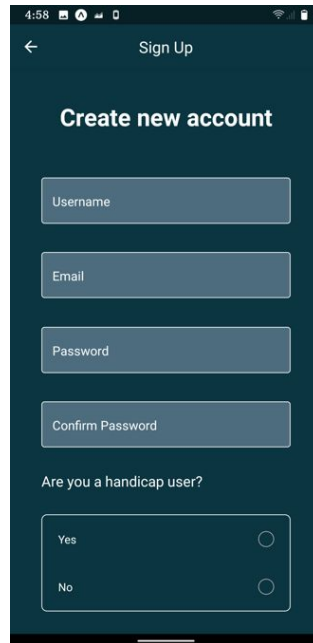
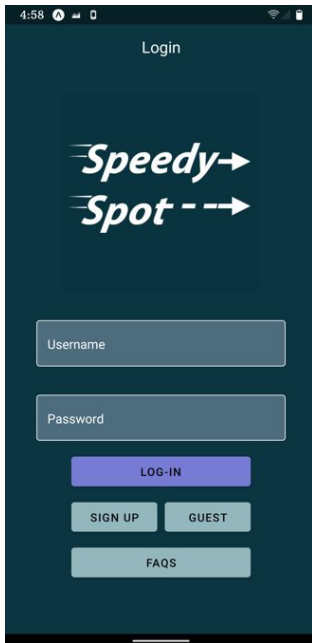
This document details a mobile application, SpeedySpot, designed as part of a research project done by Kushal Delhiwala and Austin Biegler in collaboration with Professor Tony Scarlatos of the Department of Computer Science and the Honors College at Stony Brook University. This application was built for Android and iOS using the React Native framework, with a Python Flask API used to facilitate database transactions.

The application will allow users to view current space availability at Faculty/Staff, Student Commuter, and Student Resident parking lots on the West Campus at SBU. Currently, the app supports both standard and ADA (handicap) parking spots. The app works by crowdsourcing this information from its users, along with the lot availability the app includes a “Check-In” and “Check-Out” function. When a user enters a parking lot, they would “check-in” to a lot they select, updating the parking count for that parking lot. When they leave, they can “check-out”, which would again update the parking count. A user can only be checked into one lot at a time, and even after logging out they will remain checked in until they physically check-out of the space. This functionality was added as many student residents will stay checked into a residential lot for multiple days before leaving.

The application has two types of users: registered users and guest users. Registered users will have to create an account and answer a questionnaire, while guest users will get to use the app without any sort of registration. The questionnaire consists of two questions: whether the user is handicapped, and what their status is at the university (resident, commuter, faculty/staff). If a user marks themselves as handicapped, they will be able to “check-in” and “check-out” from handicapped spots. Registered users will also be able to receive “points” every time they check-in, which they will be able to see on the scoreboard page. Guest users, on the other hand, will not accumulate points and will only be able to view the current spots available and check-in/check-out.

This app was designed around an experiment to see if incentivizing users would result in more usage on a crowdsourcing app. This was to be completed by having two sets of users: registered users and guest users, one group would get points for checking in and the other would not. The points would then be redeemable for some sort of campus rewards (such as dining dollars, Staller Center tickets, etc.) However, although we built this functionality into the app, because of the 2019-20 coronavirus pandemic, Stony Brook University shifted to a distance-learning format before we could launch our app to users.

2. Design Brief



2.1 Login Screen

