BikeSmart

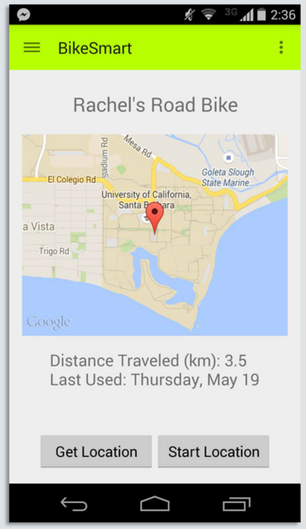
"the connected bike"

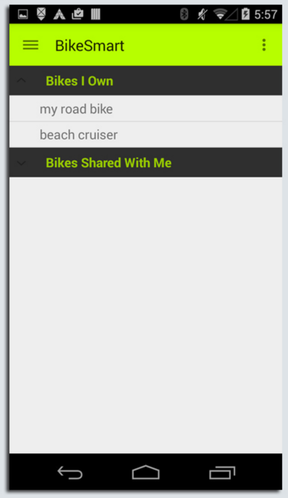
Bike Info · Performance Tracking · Real-time Location · Headlight Controls · Wireless Locking · Bike Sharing With Friends

The Application

Bikes get stolen or misplaced everyday.

BikeSmart tracks your bicycle's location in real time, using the embedded system attached to the bike frame. The system is low power and is capable of keeping track of location data even in areas of low connectivity.



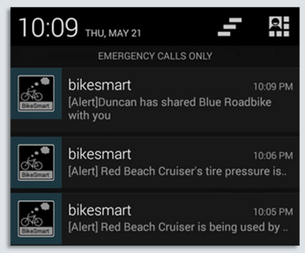


Monitoring who is borrowing your bike can be difficult.

BikeSmart uses a Parse Database to keep track of users and their bikes through related entity sets.

BikeSmart keeps an eye on your bike so you don' have to.

The on-bike system receives and analyzes data from interfaced sensors. Any relevant news is sent to the user via push notifications.



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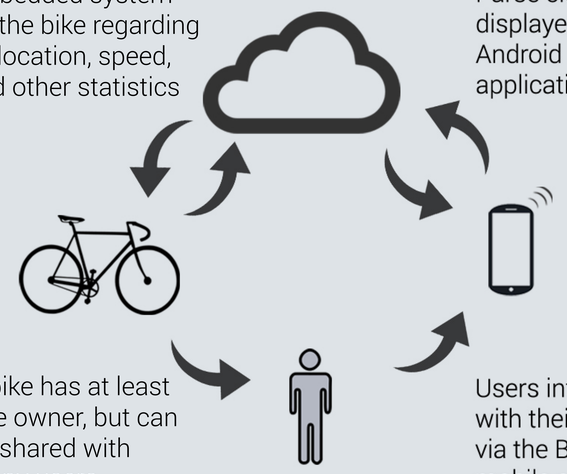
System Architecture

Parse cloud receives updates from the embedded system on the bike regarding its location, speed, and other statistics

Relevent data is pulled from the Parse cloud and displayed on an Android mobile application

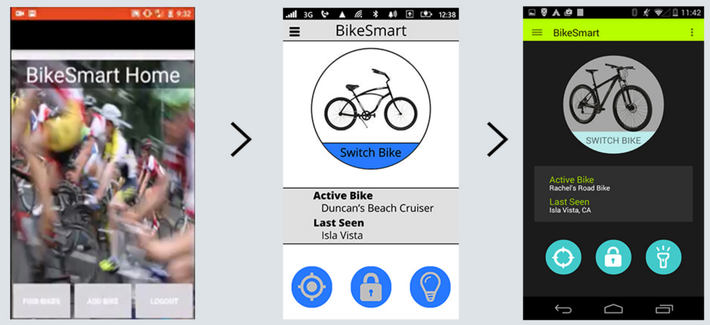


A bike has at least one owner, but can be shared with many users

Users interact with their bike via the BikeSmart mobile app

User Experience

We created BikeSmart's interface based on feedback provided by our users. Using high fidelity protoyping tools and usability testing sessions, we quickly iterated over several designs until we reached an intuitive, easy to use interface.



The BikeSmart embedded system is programmed with the Android SDK to upload data and mounted on the bike

The on-bike system uses the Google Location API to record latitude and longitude data intermittently

A Bluetooth module in the embedded system receives data from additional hardware sensors like cadence/speed

Parse

The Parse backend cloud database is set up to collect user login information and environmental data from the bike

The Android SDK is used to create a user-facing mobile application that displays any relevant data pulled from the database

ARDUINO

The Arduino platform is integrated into the mobile app to control the users' bike lock & light wirelessly