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HCDE 318

I3: Competitive Analysis

Competing Product: BitLock

Affordances:

BitLock is a combination of a smart lock and a phone app which gets rid of the need for keys. BitLock allows the user to connect their smart lock to their phone, and with a press of button, the user can either walk away to lock it, or walk towards the bike to unlock it [1]. This greatly reduces the time of locking up a bike, since users do not need to spend time looking for their key, and locking/unlocking the bike with it. One affordance of this product is that it includes a physical backup lock combination if the user's phone ends up having no battery [1]. This ensures a biker would be able to unlock their bike in case of an emergency of a dead phone, or even if their phone is stolen. Another element to this product is the ability to navigate the last location the bike was locked, in case the biker forgot where they had their bike [1]. Lastly, the lock itself is made with heat-treated, weather resistant metal, has a high-security lock mechanism, has a 5 year battery life, and supports various iOS and Android phones [1]. The efficient locking, as well as a strong lock mechanism add to having a quick, easy, and secure bike locking experience.

Criticisms:

Several criticisms are apparent as well. The geotracking of the bike only shows the last location of the bike when the app was used to unlock it. It does not show the current location, which is not helpful in locating the bike when it is stolen. The descriptions also do not explain how close or how far one has to be for the lock to detect the phone is near or far. It also does not state that there are preventative measures against someone trying to crack the backup code. This can create risky scenarios such as a thief trying to crack the code, or in an extreme situation, unlocking the bike when the user is walking away thinking they are far enough for it to lock. These can decrease the security of the lock. An additional feature that BitLock has is bikesharing. Much like Limebikes, BitLock provides bikes around a city where anyone can rent them. This just seems to be an alternate usage for the app itself but does not contribute to the secure lock functionality.

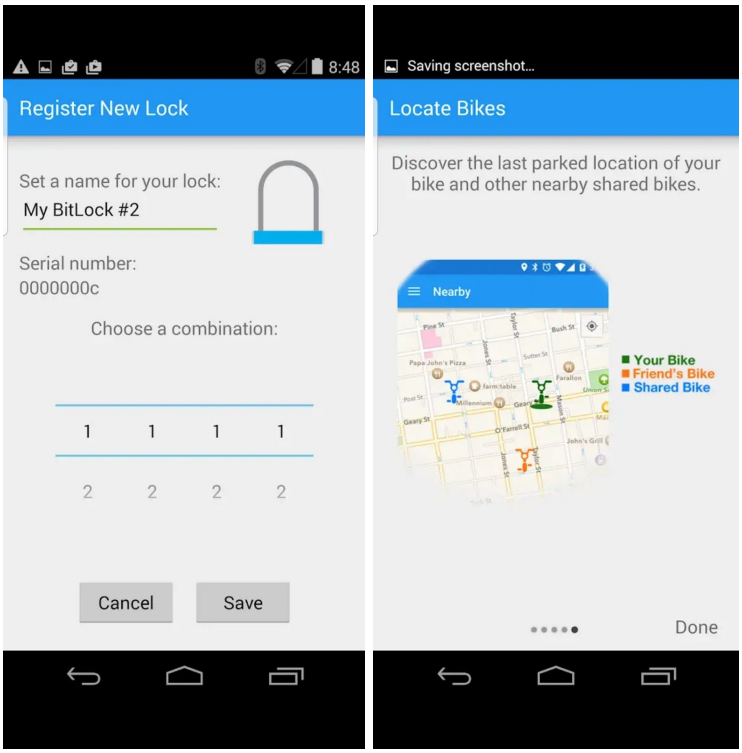


Fig 1. BitLock app screens showing the registration for a new lock and a backup combination, and a screen showing the last parked location of a locked bike [2].

Sources

[1] 2015, Mesh Motion -. “Next Generation Keyless Bike Lock.” *Bitlock*, bitlock.co/.

[2] “BitLock- Apps on Google Play.” *Google,* Google, play.google.com/store/apps/details?id=co.bitlock&hl=en_US

HCDE 318
Nadir Tareen

I3 Competitive Analysis

Competing Product: Sherlock GPS Anti Theft System for Bikes

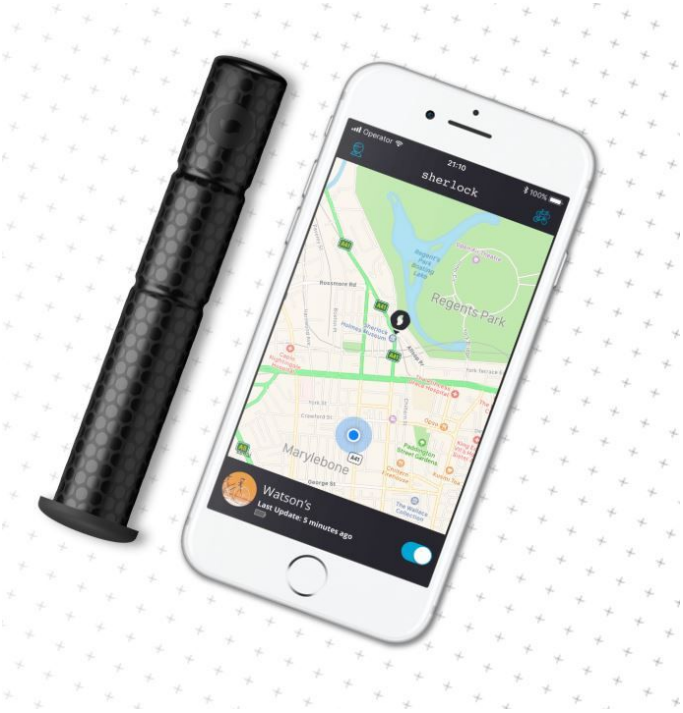
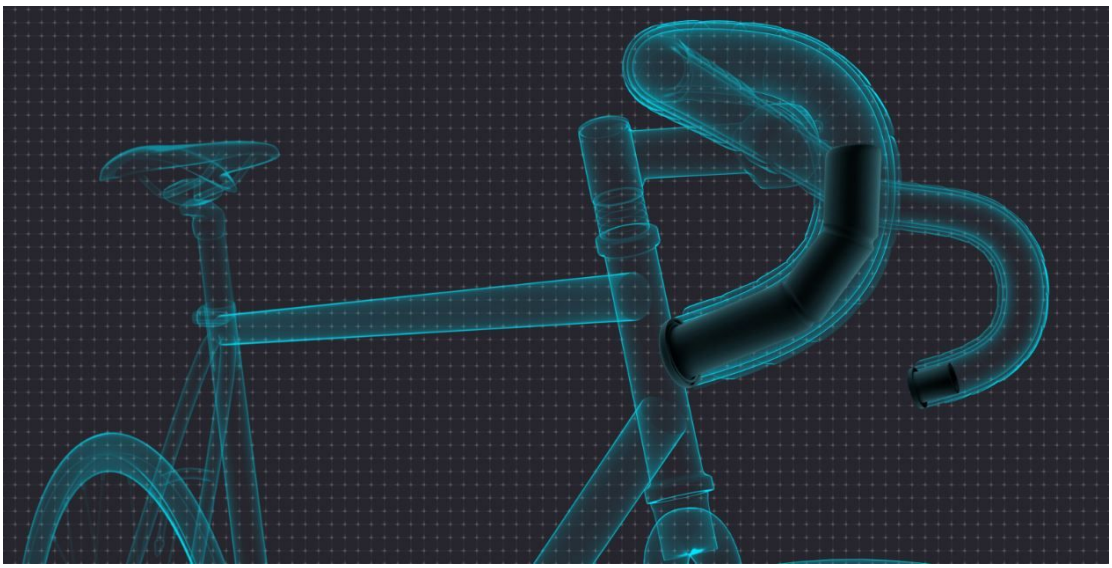


Figure 1. The device with its companion app [1]

Product Description

The Sherlock GPS Anti Theft System is a small device designed to be hidden in the handlebars of a bike. It is equipped with GPS tracking, cellular internet connectivity, Bluetooth connectivity and a motion sensor. It has a week long battery life when active after which it can be charged via micro USB [1]. It is made with flexible materials so that it can be placed inside the handlebars of most bikes and weighs only 50 grams [1].



How it works

The tracker is designed to be used with a smartphone app which communicates with it via Bluetooth. Once the user has paired the device to their phone they can insert it into the bike handlebar. Upon opening the app the user will see a map with a blue dot representing their location [1] . The user can then use the app to set the tracker from "standby" to "park" mode (given that they are in Bluetooth range) [3] and their bike's location will be displayed as a black dot. During this setting, any movement detected on the device's accelerometer will cause the device to switch to "theft" mode where device will notify the user and start sharing the bike's location every hour [1]. Once the bike has been located, the user can share its passport, a digital profile of its picture, model number and location, with the authorities for retrieval. When the user needs to operate the bike again, they have to turn off active mode using the app [1]. Additionally, the app provides a unique PIN code that can be used to track the device through the Sherlock website [1].

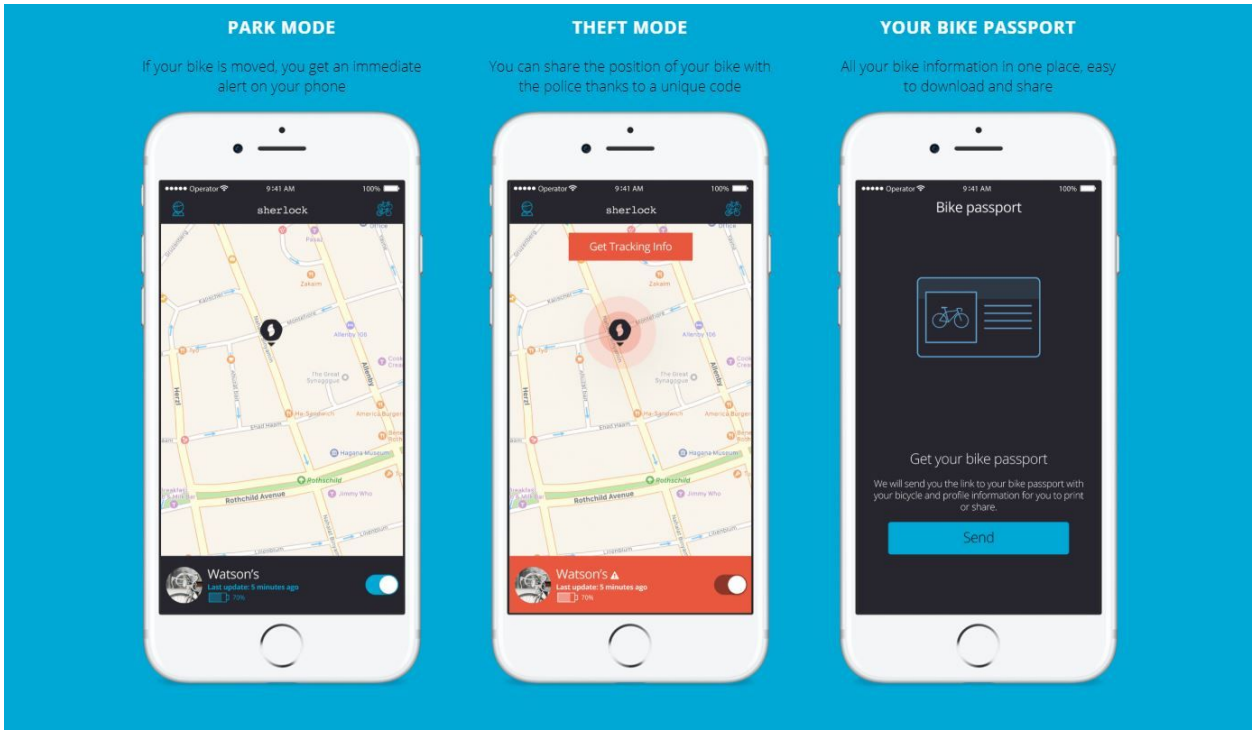


Figure 3: The different modes in the app [1]

Criticisms

While this device is an effective added layer of security for bikes, there were several criticism associated with its daily use

Firstly, it is highly sensitive to vibrations when active. This means the user will have to take care not move the bike once the device has been enabled. This also means that any movement experienced while it is locked will trigger an alert. This can easily happen when other bikers accidentally come into contact with the bike [3].

Secondly, the GPS tracking can be slow to adjust to an accurate position. This means that it will not be possible to track the bike when it is in motion. The location accuracy also suffers when the bike is indoors [2], [3].

Thirdly the battery life of the bike when it is in theft mode is 3 days (given the default reporting frequency of 1 hour and a full charge). This can be reduced to 1-2 days if the user decides to set a higher frequency or the device is not fully charged [3].

Sources

[1] "THE INVISIBLE GPS," *Sherlock*. [Online]. Available: https://www.sherlock.bike/en/. [Accessed: 25-Apr-2019].

[2] https://www.youtube.com/watch?v=AvKZ6ulLfz0&t=20s

[3] https://www.reddit.com/r/cycling/comments/8k17w2/recent_experiences_with_antitheft_gps_trackers/

I3: Competitive Analysis

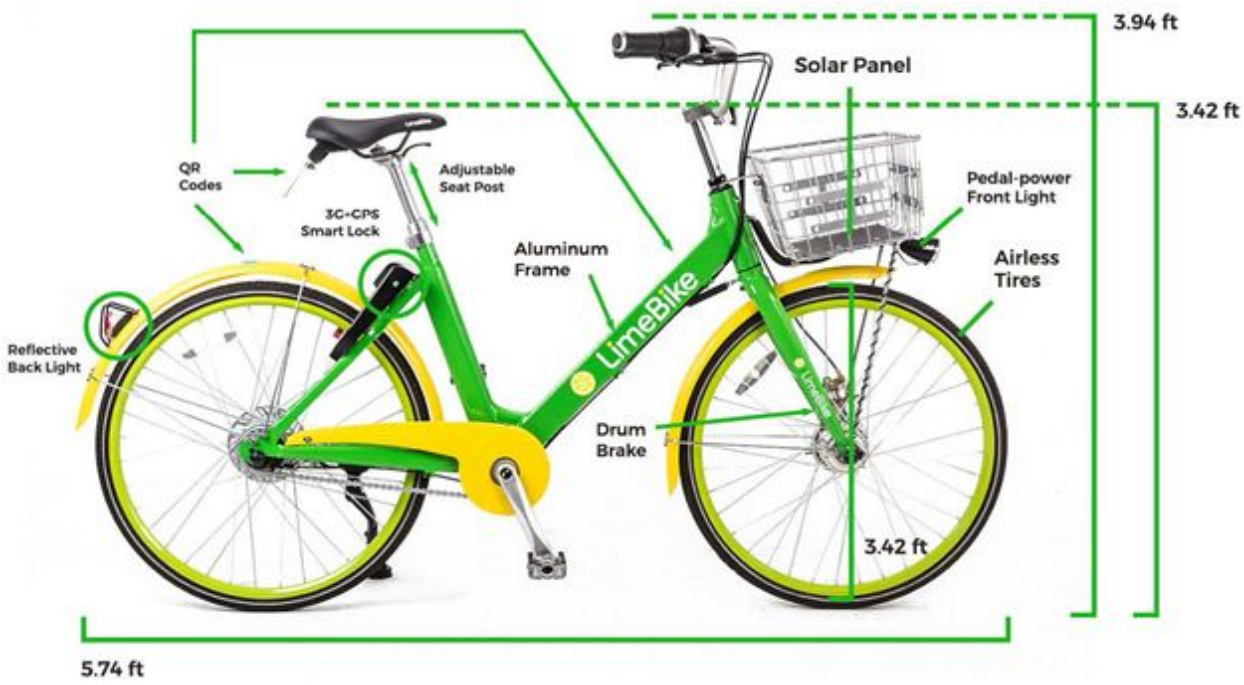
Product: Lime bike
Team One Travis Neils

Lime bike map that shows bike spots [1]

Lime rents Lime Bikes through their smartphone apps. They provide a short-term bike rental solution that allows users to bike from the closest available bike to their destination without having to worry about bike storage. This bypasses the concerns our users had about their bike being stolen, because the won't have a bike that can be stolen. They have distributed bikes on public streets and popular destinations in certain cities. Their app allows you to find the closest bikes to you. When you find one you can unlock bikes you find with a QR code or 6-digit code found on the bike. The app charges a fixed rate to unlock the bike then per minute as you ride [1]. The bikes themselves feature adjustable seats, eight gears, rear reflector, front light, drum brakes, handlebar basket, a kickstand, GPS tracking [1], and solid tires that can't go flat [2]. The bikes are waterproof and can be left in any reasonable space after you are done using them [1]. The bikes themselves are limited in their speed and comfort by their need to survive outdoors with low maintenance. One of the products main strengths is their ability to fit into the transportation puzzle because users can get off a bus rent the bike use it to get from the bus to their destination [3]. If users do this, they won't have to carry their bike on the bus or store it once they get to their destination. Our research finds that those are both concerns that users have. Another benefit is lack of user responsibility; they don't have to maintain their bike or worry about it being stolen. The users have the potential to get stuck places if they get of their bikes and another user takes them. This affects commuters the most because they are often on a tight time schedule and must leave the bike outside for large time spans. Their product works very well for tourists because they likely wouldn't have their own bike, are frequently at popular destinations, and have time to spare.

Users have found that their bikes don't work well for taller riders [3]. When going for a recreational ride, they found that using the app to find and unlock a bike wasn't difficult or time-consuming, but they did wish that it has apple pay integration [3]. They found that being able to leave the bikes where ever they finished their ride very useful and gave them more freedom on where they were going. Users found the price point reasonable [2] and don't consider it to be a potential reason not to use the bikes. The largest issues that the reviewers encountered was the lime bikes relationship with helmets.[2] The bike rental doesn't include a helmet, and lime doesn't even offer a way for users to get one from them. [1][2] The user either

must bring their own helmet or risk injury or legal ramifications by not wearing one. The reviewer pointed out the inconvenience of having to carry a helmet with you everywhere incase you want to ride a lime bike. Not providing a helmet reduces the potential userbase drastically because the key user groups of commuters, tourists, and college students who might use the bike because of the convince are all most likely not going to have a helmet with them. The reviewers mentioned that they didn't see many users with helmets, but they did see ones without getting into accidents. They also brought up that it is illegal for users in Seattle to use a bike without their helmet.



[4] Features for the lime bike

[1] Lime. (n.d.). Lime Smart Micro-Mobility Fleet. Retrieved April 24, 2019, from https://www.li.me/smart-mobility-fleet

[2] Heining, A. (2017, September 22). We tried all four of D.C.'s dockless bike-share systems. Here's our review. Retrieved April 24, 2019, from https://www.washingtonpost.com/news/dr-gridlock/wp/2017/09/22/we-rode-all-four-of-d-c-s-dockless-bike-share-so-you-wouldnt-have-to/?noredirect=on&utm_term=.8b840129e9cd

[3] Bishop, T. (2017, July 24). Testing the new breed of bike sharing: We pitted Spin vs. LimeBike on the streets of Seattle. Retrieved April 24, 2019, from https://www.geekwire.com/2017/testing-new-breed-bike-sharing-pitted-spin-vs-limebike-streets-seattle/

[4] Bike Milton. Bike Share. http://www.bikemilton.org/home/bike-share

* Wasn’t used as a trustworthy source of information, all facts and images were verified elsewhere.