

インセンティブ設計とスマートロックを活用した自転車シェアの最適化「Incentivizing bike sharing」 – Bike share anybody can start, from one bike, anywhere –

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1. Background

Existing bike share model has two problems. First, the operators have to prepare bikes and ports, and then maintain them. This is costly, making it difficult to expand the service. Second, they have to determine the port locations. Since a thorough location research is prohibitively costly, many needs remain unnoticed and unserved.

2. Goal of this project

We have developed a new model of bike share to solve the above two problems with the combination of technology and incentive scheme. Our model of bike share enables anybody to rent-out their own bikes to make money, from just one bike, anywhere. In this model, infrastructure costs are on the bike owner who rent out a bike. Owners naturally have significant knowledge of their locality, so they are in a good position to identify the needs for bike share. Our simple incentive allow them to monetize on such local knowledge by renting out bikes. Thus, our model is able to serve the needs that were previously unnoticed.

3. Markets

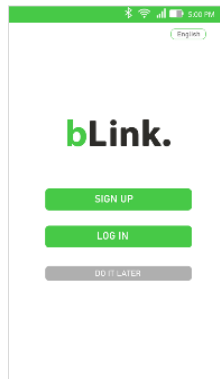
We conducted extensive user surveys during this period, and found out that the following three markets are promising: (1) AirBnB hosts rent out bikes to their guests. (2) At an apartment, those who have an electric bike rent it out to their neighbors. (3) Hotels rent out bikes to their guests.

4. User survey results

(1) 15 AirBnB hosts: 13 said they want to rent out. (2) 45 business travelers: 38 said they want to rent a bike at a hotel. (3) 17 apartment residents: 11 said they want to rent a bike at their apartments. (4) 4 hotel managers: 2 said they want to rent out a bike.

5. Development

We developed the smartlock and the software during the period. Our smartlock communicates with Bluetooth, and has GPS inside. Unlocking mechanism requires only 3v. It can be manually unlocked, which makes the trouble shooting much easier for the owners. Our software contains three layers. First layer is for the database. We separated the user identity data from the rest of the data for data security. The second layer is for the business. The authentication is handled by the industry-standard JWT token. The third layer is for the mobile application.



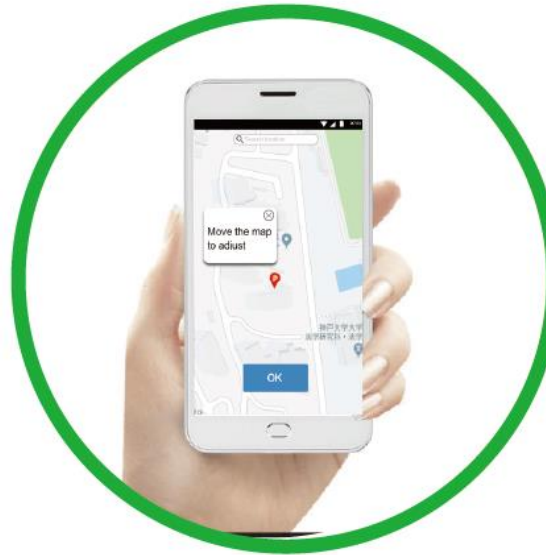
6. How to use our service

(1) To rent out

Prepare a bike



Set a port location



Install our smart-lock



(2) To ride

Find a bike



Get there



Scan the QR code to unlock

