• EasyPark •

Faster, Safer, Eco-Friendly

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Innovation Plan

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I) Executive Summary 1

Finding a parking spot has always been a challenge, no matter the location. Many popular attractions such as malls, amusement parks, and theaters, have already implemented new ideas to make parking easier. However, these “revolutionary” ideas have not met nor exceeded customer’s expectations. EasyPark allows attractions to effectively display their parking status, which will allow drivers to efficiently plan ahead. Since the current availability for this line of products is very small, we will have the advantage. Since our product is very versatile and able to adapt to customer needs, we will be able to serve different types of parking lots. Finally, the EasyPark app will be available online for drivers to use for finding the optimal parking spot at their desired attraction.

Problems: *The detriments of conventional parking: slow, dangerous, illegal situations, and excess carbon emissions.*	❏ **Inefficiency:** Drivers take 5 minutes on average to find a parking spot or longer at lots in higher traffic zones or popular attractions. ❏ **Dangerous:** 20% of car crashes happen in the parking lot. ❏ **Illegal Parking:** This is a big problem at major attractions, where a single car in the wrong spot can cause congestion and crashes. ❏ **Carbon Emissions:** While idling or driving in a parking lot, more than 730 tons of greenhouse gases are emitted in the US alone.
Solutions: *An app that lets drivers find the optimal parking space at any parking lot that has purchased the EasyPark service. The app uses EasyPark’s installed sensors in the parking lot to give drivers an easier parking experience.*	❏ **Internet of Things Integration:** Easy to access since all data is passed through wirelessly to our servers with reliability. ❏ **EasyPark GPS System:** Brings customers directly to their desired parking spot efficiently. ❏ **Predictive Analytics:** We plan on integrating a method for the app to analyze the parking spots by itself through machine learning software.
Funding: *We start off with a 6-month beta test, then continue to improve on our product, then go public with investors.*	❏ Google Cloud Firestone Server (Store App/Sensor Data): $1,106 for 10 TB ❏ Solar powered proximity sensor: $9-10/sensor + $100/solar powered battery ❏ Create the App: $200/month of service ❏ **Total: $14,990 (~$500 per row of parking spots)**

II) Problem: 2

Conventional Parking Lot's Inefficiency:

Parking lots are unorganized so finding a parking spot is based on luck, which gives it a bad element of surprise. These circumstances can leave drivers frustrated, which ruins their experience. While drivers zoom from side to side searching for a parking space, parking can get hectic very quickly in these "labyrinths", as the average driver wastes **17 hours** a year trying to find a parking spot.

Car Crashes:

With frustrated drivers, it is obvious that accidents are prone to happen. Unfortunately, **20 percent of car crashes** in the United States occur in parking lots, many of which befall while drivers look for an open spot.

Illegal Parking:

After a long time of searching for a parking spot, many drivers give up and resolve their issues by illegally parking, which is problematic in many different ways. Illegally parked cars can block important roads, which may increase traffic and cause congestion, raising the number of crashes, confusion, and frustration for drivers. In fact, every **26 seconds** an illegal parking ticket is issued despite the United States having **2 billion** parking spots for **250 million** cars.

Harsh Environmental Effects:

Our ecosystem gets more clouded with carbon dioxide everyday due to vehicles, and adding **950,000 excess miles** while trying to find a parking spot just in Los Angeles does not help the atmosphere. These extra miles added up to **730 tons** of greenhouse gases each year, and this number will continue to increase unless drivers can quickly find a spot.

III) Customer Segments 3

Our product will have two target markets: EasyPark for major attractions such as shopping centers, amusement parks, tourist attractions (Primary) and the EasyPark App for everyday travelers who go to these places (Secondary). The primary market are the people purchasing the physical product, such as the sensors, and putting their parking lot blueprint on our app. As we obtain data from our sensors, our primary market will have the option to buy our analytics so their customers can get better chances at planning ahead. Our secondary market will download the free EasyPark App to see how busy their desired attraction is, as well as see detailed analytics on which parking spots are the best. Also, since this app will save time finding a parking spot, more people will want to shop in stores instead of online, increasing popularity of stores which are not on the internet yet, and making shoppers/visitors more content while at that shop. Along with our service, we offer a data package to major attractions. They can use this to change their parking strategies, according to the data trends, and also sell this data to other attractions who share the same lots. We will initially observe how our product cooperates with everyday shoppers, and slowly implement more types of attractions, such as amusement parks, tourist attractions, private enterprises, and even government planned events. Once we have a reliable way to analyze the data, we will introduce a third party, such as Google, who can buy this data about users and attractions. These companies can use data like ours to help give personalized ads, boosting their revenue.

Primary Market (EasyPark + Sensors)	Secondary Market (EasyPark App)
Major attractions can buy our product to get proximity sensors and EasyPark service. They can also buy more advanced statistics and predictions.	**Geographic:** Major Attractions (plazas) **Demographic:** Anyone who has a license | Age: 17+ **Income:** Not Necessary

IV) Unique Value Proposition 4

As more people start driving regularly to buy goods at shopping centers or visit popular attractions, they will need to plan ahead because of hectic rush hours. Our product is unique to the market because it holds the ability to be versatile and adaptable to many different parking lots, giving attractions the opportunity to display their lots online so their customers can plan ahead. This means our product is unique to the market, which gives us a huge advantage to disrupt the current parking industry. Our product ensures flexibility with the interactive map that can adopt any size of parking lot(s). This will make EasyPark the primary business in the parking lot navigation market, therefore reducing rival companies and increasing our customers.

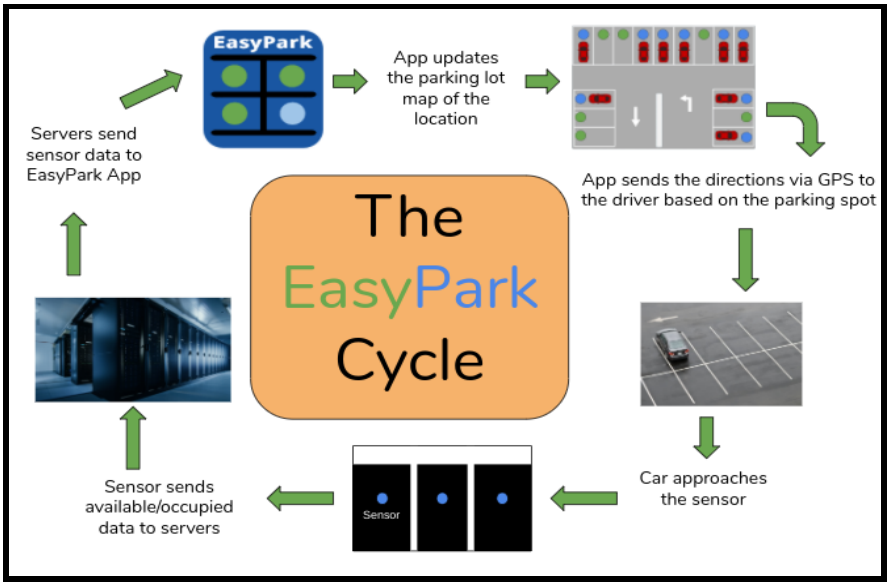
Furthermore, we expect an extremely low chance of our product getting replaced because of “better” material or “faster” methods. As of February 2020, this is by far the fastest method to display publicly an attraction’s parking situation, as well as the added benefit of drivers being able to plan ahead with our parking spot analyses. We believe our product will satisfy people who don’t even regularly shop at physical locations. As our company continues to generate more revenue, we will use the profit to invest in more state-of-the-art technology for even faster sensor-server communications as well as more efficient parking methods to introduce to the public to further reduce accidents and save gas. Finally, because of the low startup costs, EasyPark will quickly become the number one provider in this market because of how simple this product is and what a complex issue it solves. Thus, we help attractions gain customers by improving their parking lots to increase efficiency, lower environmental damage, and increase safety.

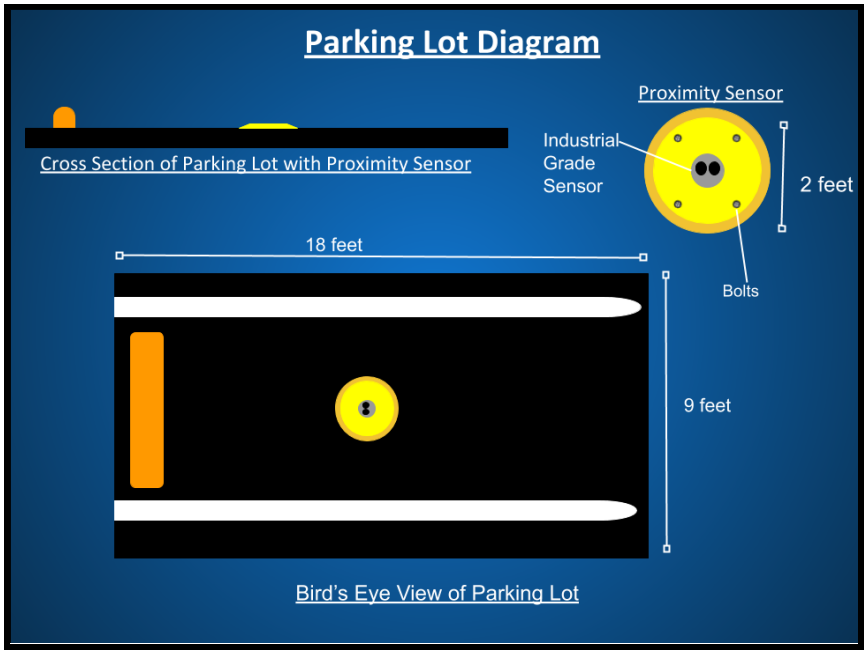
V) Solution: 5

EasyPark will solve all the detrimental aspects of conventional parking, such as inefficiency, unsafeness, and illegal parking. For a location's parking lot(s), we will offer an affordable installation and setup, which consists of installing the sensors and uploading the parking lot map in the app. In general, the sensors send the data to us, and we use it to update the attraction's parking lot map on the app in real time, so drivers can plan their trip efficiently.

Internet of Things (IOT) **Solves: Inefficiency**	**GPS system** **Solves: Car Crashes, Illegal Parking, Carbon Emissions**	**Predictive Analytics** **Solves: Inefficiency, Carbon Emissions**
*Our app will use a connection to the internet, allowing drivers to view **up to date information** about the parking lot(s).* **Sensor Data Transfer** Through a constant internet connection, sensors installed in each parking lot can send ***real time data*** back to drivers. It will send information if a parking spot is occupied or not. **Voice Command** IOT integration also allows our product to be very ***flexible*** and ***compatible*** with other IOT devices such as voice assistants and smart home appliances. _____ **How this solves the problem:** 1) Live information on the parking lot gives drivers a ***better understanding*** about the lot, allowing them to plan their trip accordingly. 2) Wide range of ***flexibility*** with other devices will increase our app's ***convenience for drivers***. *As all settings on the internet, a driver's preferences will carry over from device to device using their EasyPark account information.*	*The Easy Park app will have an integrated GPS system that will use information from the sensors to give the driver **turn-by-turn instructions** to the **optimal parking space.*** _____ **How this solves the problems:** *Decreased Accidents* The GPS reduces car crashes because it ***lowers distractions*** at the parking lot. Drivers only need to focus on driving because their attention is not diverted towards finding the best parking spot. With more attentive drivers, car crashes will go down, creating a ***safer*** parking lot. *Illegal Parking* It also prevents people from resorting to illegal parking because drivers will ***know exactly where to park*** through the GPS map and directions. *Lower Carbon Emissions* The GPS system will ***reduce the amount of gas wasted*** in parking lots because drivers will not circle all around the parking complex to find a spot; the GPS gives them the most efficient route to it, effectively reducing carbon emissions.	*After collecting enough information, our software will look at trends in the parking lot. Instead of simply saying that spot is "Vacant" or "Occupied," it can give **detailed predictions** on what the status of the parking lot will be in the **future**. The specific predictions will take into account multiple factors such as history of the parking spot, percent of time occupied, driver preferences, etc.* **Machine Learning** After about 1-2 years from launch, we will integrate these patterns into the EasyPark App's code itself, so the app will display the data without us constantly updating it. _____ **How this solves the problem:** By giving drivers the most accurate prediction, they can plan their trip with ***precision.*** These predictions will result in less time spent in the parking lot, making their trip ***more efficient*** and ***reducing carbon emissions.***

The Easy Park Cycle, Diagram, and Beta Testing 6



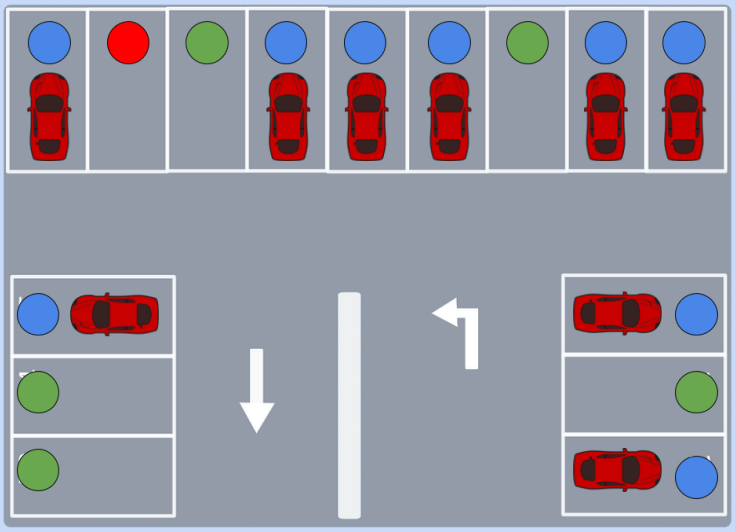


Phase 1: Customer Discovery	Phase 2: Installation	Phase 3: Beta Test
We interview customers at local attractions to find patterns in parking, frequency, and optimal hours.	With the consent of these attractions, we install our sensors to some amount of parking spots and make the corresponding map on our app.	We give people who regularly go to these attractions the download for the EasyPark App and test how they use the app to their advantage to plan ahead.

App Layout

The **EasyPark App** can be easily found on the app store, located in the **free** section. This design displays a parking lot with colored circles in each spot which displays if the spot is vacant or occupied.

The **interactive map** displays the entire layout of the parking lot. The cars are shown in the picture to represent if a spot is **vacant (green)** or **occupied (blue)**. A **red** circle will symbolize if the sensor is out of order or not working. This map will help drivers efficiently find an available parking spot without confusion or frustration because of its organization.



When clicking on a circle, details of the parking spot will show up. Statistics will give a range for the **best time to park**, the **percentage of time the parking spot is occupied**, and if there are any **special options** with the spot. These features can easily allow customers to plan ahead.

VI) Conclusion 8

The EasyPark App will resolve the inefficiency, unsafeness, and illegality that current parking lots have. While collaborating with parking lot owners effectively to maximize their investment and also making sure they get the best possible analysis for their parking lot, we will ensure maximum customer satisfaction. Parking lot owners can increase their revenue because we allow drivers to plan ahead, which will increase the volume of drivers coming to the attraction. Also, the EasyPark App will encourage regular online shoppers to come shop in-stores, further increasing business for attractions. Ultimately, the EasyPark App allows our primary and secondary customers to benefit from reliable parking lot management services. This allows finding a parking spot with ease, reducing stress in drivers and ultimately decreasing the chance of accidents. Our multiple sources of revenue come from selling our product/data to parking lot owners and to third party companies to display these analytics; consequently, we will use the profit to continue to improve the EasyPark app as well as improve the proximity sensors. With this, we hope to expand our business locally towards a nationwide product. For the future, we plan on integrating our app to voice assistants and smart home appliances, such as Google Home or Amazon Alexa, to quickly see how busy an attraction's parking lot is. Upon the growth of autonomous driving, we plan on integrating EasyPark into self-driving cars, which will allow for additional convenience. Finally, we would add an option for reserved parking, which would hold a spot for the user for a certain window, and integrate the corresponding colors into the app. In conclusion, the EasyPark app results in convenience, efficiency, and satisfaction for drivers and allows for growth of businesses/organizations that integrate their parking lots with the EasyPark app.

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