INTRO (1 min)

* Parking is often the worst part about commuting downtown. It can be a waste of time, make you late to a meeting and cause unnecessary stress.
* What if there was an app that gave you the estimated to find a parking spot, or even a specific street with open parking,
* While there are many apps to assist with directions and travel time, but none of them accurately provide reliable information about parking.
* If you had insight that your 10 minute commute also had an additional 10 minutes to find parking would that change the way you commute?
* We are confident our technology will make parking easier for drivers, parking enforcement and businesses, while reducing urban congestion which can be harmful to the environment and other people

PROBLEM (3 min)

* Open
  + To motivate the necessity of our technology, I’d like to define the parking problem and highlight some of the repercussions
* Time
  + In seattle, 40% of the surface traffic is due to cars circling blocks for parking.
  + People tend to circle the same, popular areas when nearby lesser known regions have open parking
  + According to a national survey, people spend an average of 10 minutes searching for parking in urban areas.
* Emissions
  + The longer cars are on the road, the more emissions released, and in an urban climate often lacking plants and trees, this can have a significant effect on the air quality
  + Cars are often least efficient in stop and go traffic, releasing roughly 4 times the emissions of cars traveling at 40mph
    - Additionally, in stop and go traffic (<40mph), fuel is often vaporized and not even used for propulsion
    - As a result, emissions from circling cars can exceed 1000 g/mile which is roughly 4 times that of cars traveling at a continuous, speed of 40mph
  + Though other solutions to urban emissions are well known, many of them don’t actually solve the problem at the source and involve expensive projects such as public gardens and additional infrastructure
* Civilian Safety
  + Vehicle congestion can make urban areas dangerous, and not just because of the air quality
  + Failure to find parking can make a driver impatient and distracted. This can lead to collisions, and in a densely populated area one mistake has the potential to harm a lot of people
* Business
  + Downtown business are plagued by the parking issue as well
  + If parking is scarce, customers will be too
  + Often the only solution is to build another parking garage, or enable customer only parking. Both options are difficult for small businesses to afford and regulate
  + What if businesses could guarantee parking to customers
* Close
  + Cities are only getting bigger and all of the problems mentioned above will only get worse if there are no changes to the traffic flow and organization
  + Do we really want this lack of organization to cause the most populated parts of the city to suffer from poor air quality and unpredictable arrival times.

SOLUTION (5 min)

* Intro
  + We propose a mobile app that predicts regions with open parking based off historical data
  + A user will be able to input a destination and other options such as a max walking distance and a route will be calculated using Google Maps api.
  + Routes can prioritize time, parking cost and walking distance so the user gets the ideal directions
  + Our service aims to save users time, while reducing urban congestion
* Competition
  + Before explaining the details, i’d like to talk about the competition
  + Rideify shows open spots, but relies on its users to update the database when spots open. Your ability to find a spot rests in the hands of other people, not data
  + Swiftly is a trip planner specific to SF. While they dont track parking, they indicated a commercial interest into this
  + Google maps and other navigation apps can show multiple ways to get to a destination, but the driving option fails to include the time it may take to find parking, often giving users inaccurate arrival times.
  + Google Sidewalks?
* How we are different
  + We would like to show transportation times and costs for public transit, uber, biking and driving including parking. This way users can plan their commute with an unbiased idea of the time and cost of different methods
  + What makes us different is that we don't rely on crowdsourced data
  + Our accuracy is due to our In house prediction algorithm that uses historical data as an input.
  + With this algorithm, which uses modern machine learning techniques, we can see how time of day, month or even weather may affect parking
  + We also harbor a Close relationship to SDOT which helps to predict parking using the City of Seattle’s somewhat cryptic representation of parking transactions.
  + OneBusAway developed in a similar manner, now everyone uses it
  + Can easily work for other cities provided the information is available to us
* Current state
  + We have a backend and database populated with Seattle’s transaction history
  + We have a prediction algorithm capable of associating a probability with each parking space
  + We have a live demo for viewing routes, historical parking data and our predictions
  + We have started app development
* Data
  + Unlike competing apps that use crowdsourced data to indicate open parking spots, our algorithm only relies on historical data
  + Many of the largest cities have opened their transaction data to the public including Seattle, London, NY, SF and many other urban cities
  + Cities that keep this data private may be convinced to open the data if their is a benefit
  + In doing this we will collect valuable data that can be used to help the city and urban planners or be sold for commercial purposes
* Crowdsource
  + After gathering a significant user base, prediction can be improved using crowdsourced data
  + Users can agree to send their GPS data so it is exactly known when a user arrives and leaves a spot.
* Payment model
  + With this high fidelity information, the city can propose a new, more convenient payment model that can be done through the app.
  + In this case, a user could be charged precisely based off the arrival and departure to the spot.
  + Though parking payment apps exist, they still require the user to print a receipt from a paystation.
  + This would also make meter enforcement easier as receipts are electronically logged to the user's profile
  + Though our main aim is to reduce urban congestion, the convenience enabled by this new payment model is a significant byproduct
* IoT
  + With the demand of IoT devices, everything is starting to become interconnected. Parking is starting to embrace this shift, especially with the advent of autonomous cars.
  + Our app will accelerate this shift
* Revenue Model
  + Leverage SDOT to advertise and offer incentives to using the app
  + Service charge for using in app payment
  + Recommend businesses and deals nearby the parking spot
  + Sell information to local businesses or corporate partners like Google maps and swiftly
* Social
  + Crowdsourcing
  + Feedback from users
  + Incentivise with gamification
  + Share open spot
* Why we need funding
  + Development time
    - UI design
    - Backend
  + Fees
    - AWS database usage
    - Google API usage
  + Advertising
  + Scaling to other cities
  + Maintaining after students move on

CONCLUSION (1 min)