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MOBILIZING **YOUR** WORLD

# Integrated Parking System

**TEAM 2: SOPHOMORE SLUMP**



**Ferra Chen**  
1<sup>st</sup> Year FT.MBA



**Laurence Fong**  
2<sup>nd</sup> Year Comp Sci

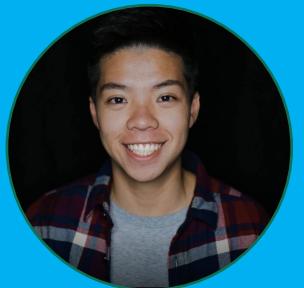


**Kartik Mahajan**  
2<sup>nd</sup> Year Comp Sci



**Kelly Mak**  
3<sup>rd</sup> Year MBA.PM

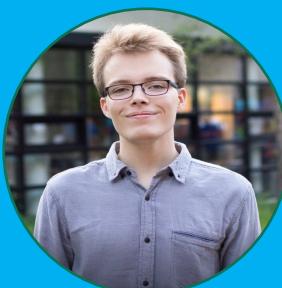
## TEAM 2: SOPHOMORE SLUMP



**Brandon Kay**  
2<sup>nd</sup> Year BSBA



**Ben Ma**  
2<sup>nd</sup> Year Comp Sci



**Jonathan Holtmann**  
2<sup>nd</sup> Year Comp Sci



**Jessica Au**  
2<sup>nd</sup> Year Comp Sci

# AGENDA

- PROBLEM STATEMENT
- SOLUTION
- IMPLEMENTATION
- DEMO
- FINANCIALS / FEASIBILITY
- RISK & MITIGATIONS
- Q&A
- APPENDIX



# PARKING IN MAJOR CITIES



## Looking for Parking

- Driving around in circles
- Fighting for a spot

## Checking on Time

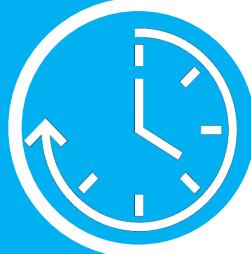
- Constant monitoring of time
- Step out to renew or move car



## Paying on the Spot

- Physically pay at meter
- Choosing set incremental times

# PARKING INCONVENIENCE



Average time spent looking for parking in LA: 12 min each time or 85 hours per year



\$1,735 per driver per year of wasted money



Frustration builds up when people cannot find parking right away

# SOLUTION

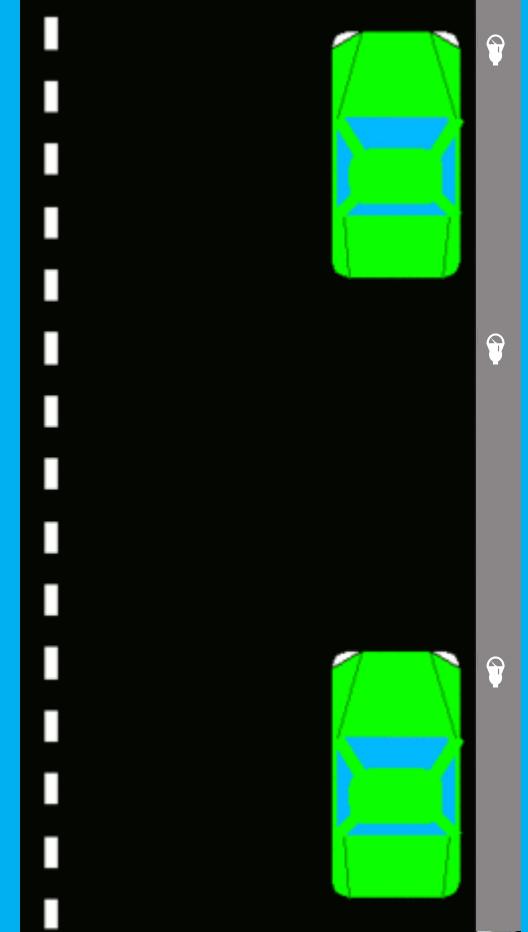
## SMART PARKING METER WITH CAMERA/SENSOR AND APP

Real time updates on available spots and estimated time before available

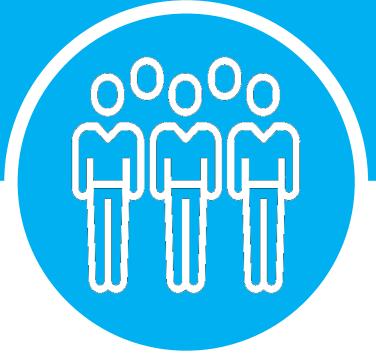
Notifications and Mobile Pay Through App

Attach Hotspots to certain meters (keeping people connected)

IoT (Easier for Department of Transportation to track)



# ADVANTAGES



## CUSTOMERS

- Save Gas & Time
- Less Frustration
- Quick and Easy to Locate



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- Collect Data on Parking Trends
- Understand Customers
- Keep Customers Mobilized



## CITY

- Easier Planning
- Saves on Resources
- Reduce Congestion

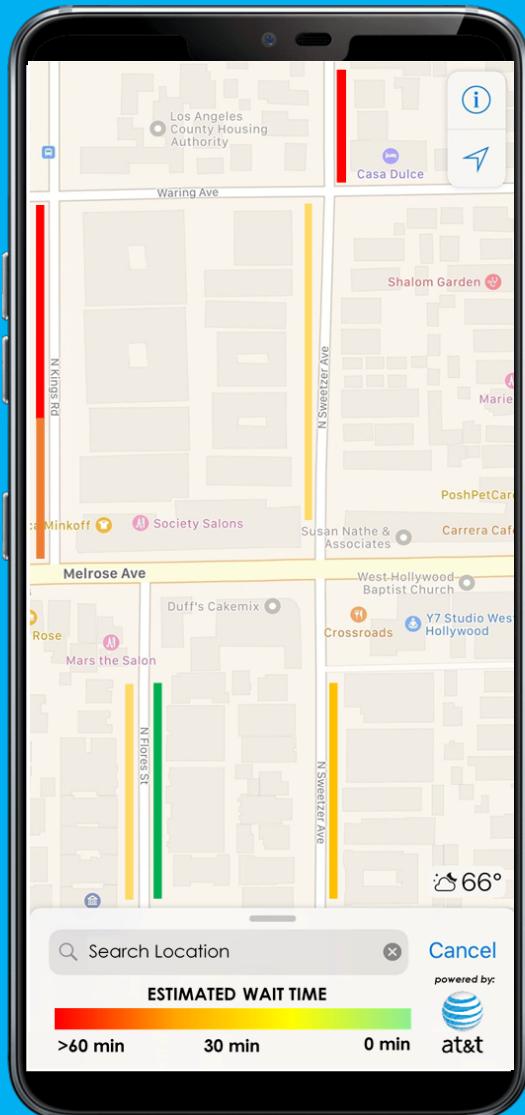
# USER INTERFACE – FRONT END



Approximated  
Wait Times



Search Location



Utilizes Google  
Maps API



Showcases which  
streets have  
available parking

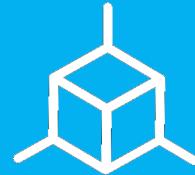
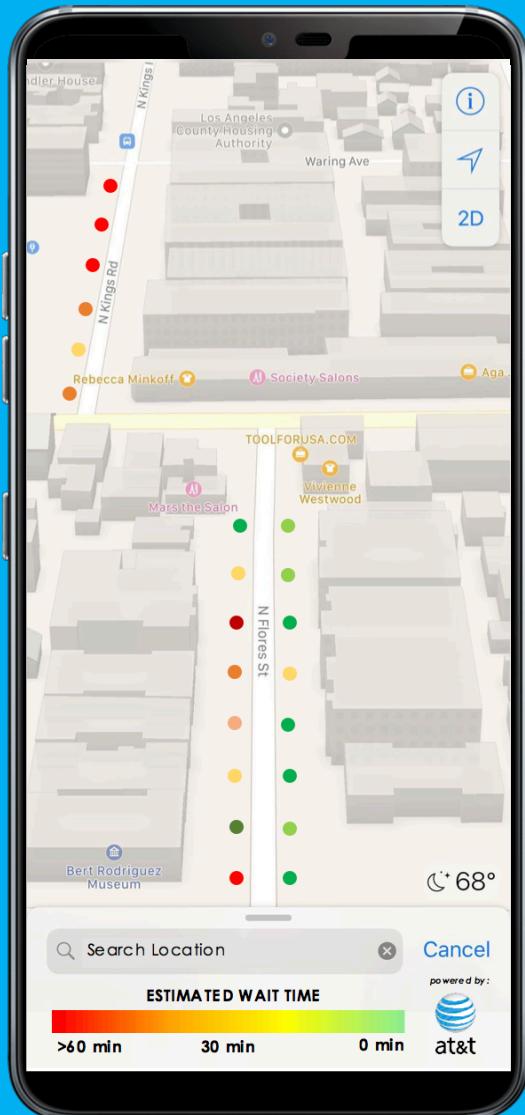
# USER INTERFACE – FRONT END



Zoom for specific information



Recommends parking in seconds

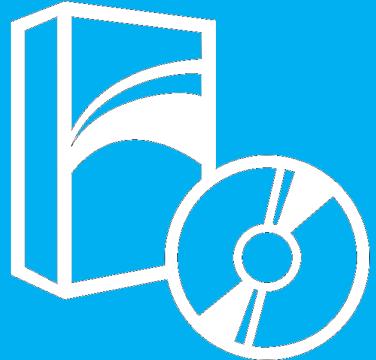


3D close-up capabilities



Exact street parking wait times

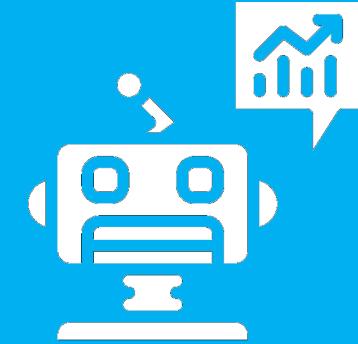
# COMPANY – BACK END



Install sensors  
and controllers

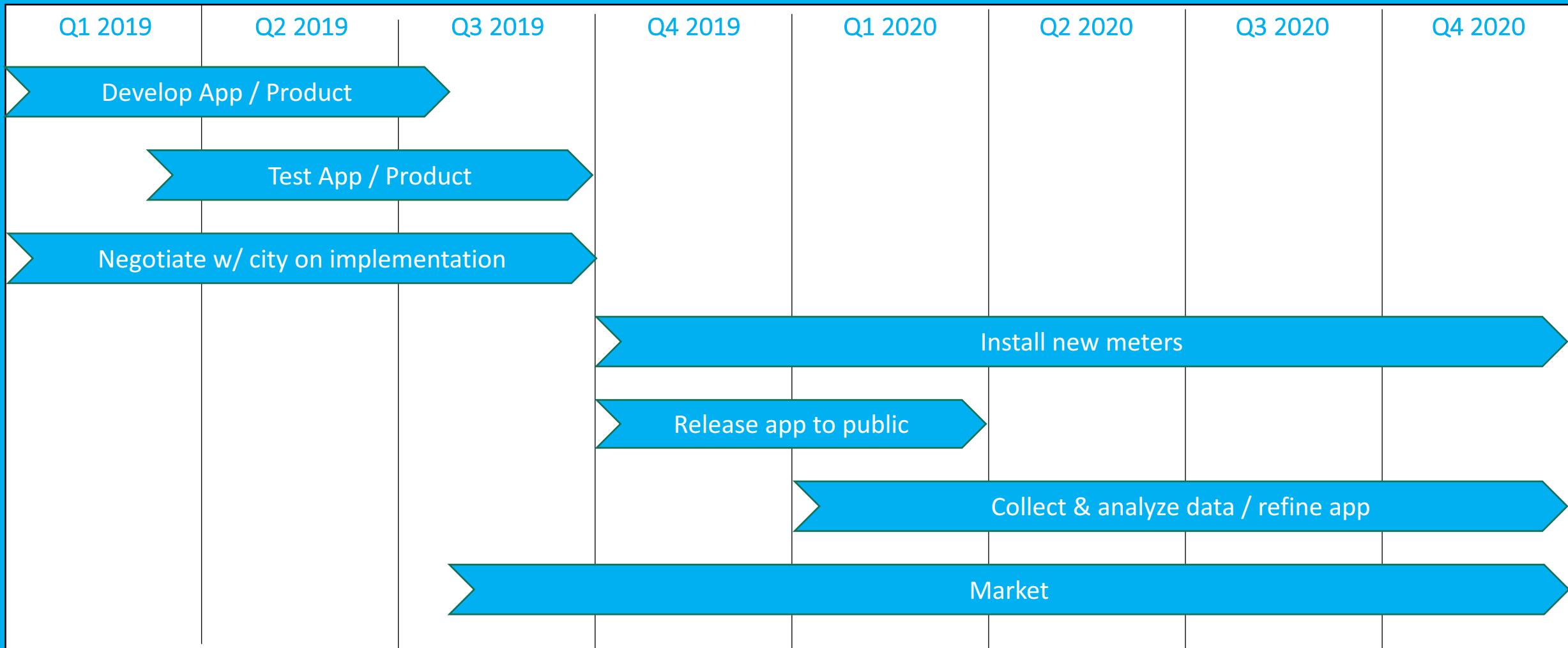


Pricing Control



Trend Predictions

# IMPLEMENTATION



# DEMO

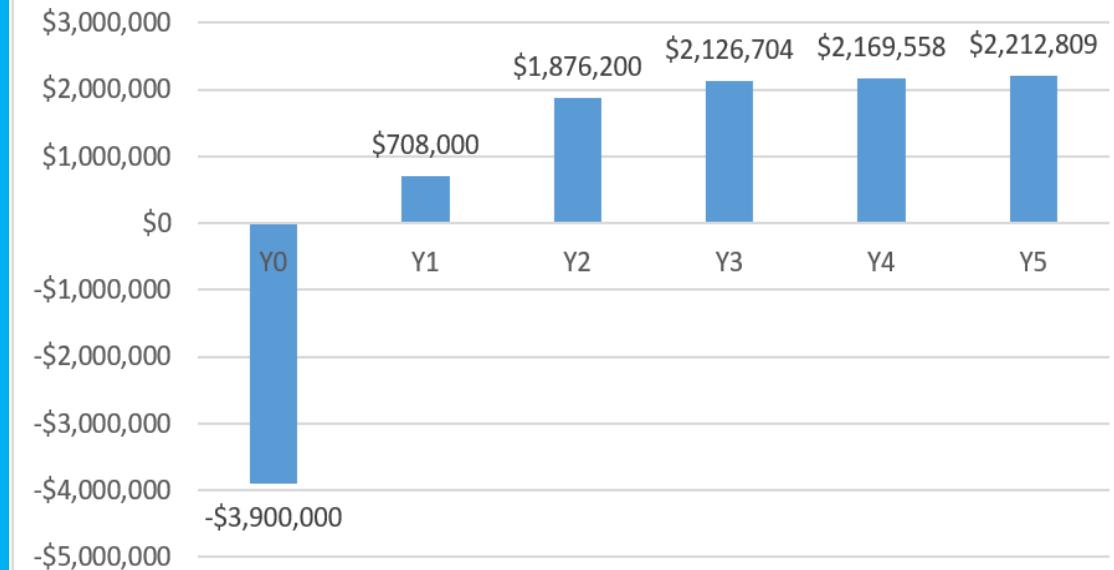
# FINANCIAL FEASIBILITY

## Key Assumptions

- Area of City of Los Angeles – 503 sq. mi
- # of parking meters in LA – 40,000
- Estimated Utilization Rate – 50%
- Average rate per hour at meter - \$1
- Commission rate from meters – 8%

CAGR = 16.70%

Cashflow



IRR = 30.86% over five years

# RISK

Dependency on  
background tech support

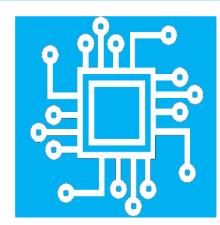


Regulation and policy on  
intervening public system



Personal data usage

# MITIGATION



Backup technology system  
and database

Lobby and present benefits  
to the city

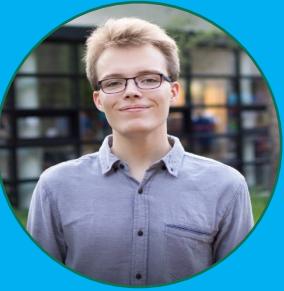


Compliance and risk  
control

# AT&T



## QUESTIONS?



# APPENDIX

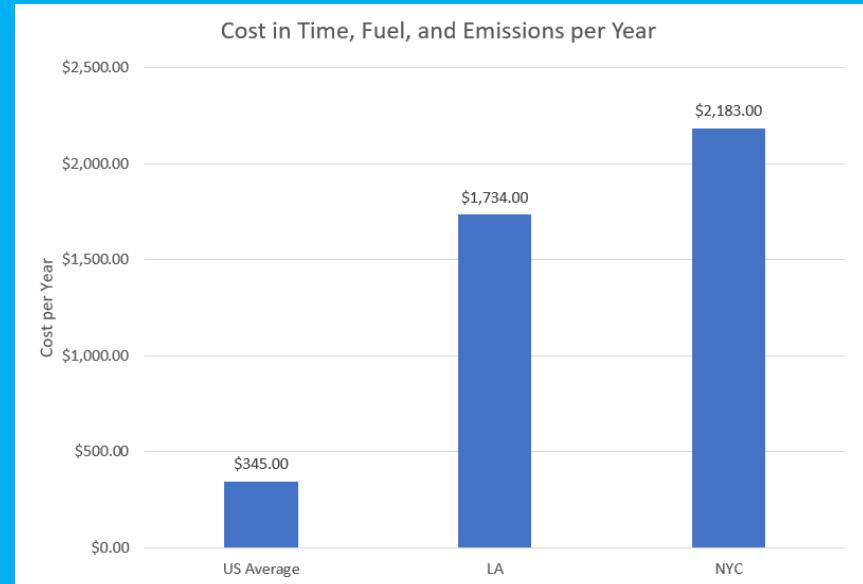
# Benefit to Users

Reduce wasted time spent looking for parking

Lower fuel consumption and emissions

Decrease frustration and road rage

Source: <https://abc7.com/traffic/la-drivers-spend-85-hours-a-year-searching-for-parking/2210717/>



# FINANCIAL FEASIBILITY - ASSUMPTIONS

## Scope of Work

Area of City of Los Angeles

**503.000** sq. mi

Estimated Number of Street Parking

**40,000**

Estimated Utilization Rate

**50%**

## Construction Plan

|    |            |        |           |   |
|----|------------|--------|-----------|---|
| Y1 | <b>50%</b> | 20,000 | Assume:   |   |
| Y2 | <b>50%</b> | 20,000 | <b>6</b>  | effective installing hours per worker per day (exclude travelling time) |
| Y3 | <b>0%</b>  | -      | <b>30</b> | min per install   |
| Y4 | <b>0%</b>  | -      | 3,120     | installed sensors per worker per year                                   |
| Y5 | <b>0%</b>  | -      | <b>10</b> | # of installing workers needed for 20% workload                         |

# FINANCIAL FEASIBILITY – RETURN ANALYSIS

| Return Analysis                  |                | Y0<br>11/1/2018 | Y1<br>11/1/2019 | 2%<br>Y2<br>11/1/2020 | 2%<br>Y3<br>11/1/2021 | 2%<br>Y4<br>11/1/2022 | 2%<br>Y5<br>11/1/2023 |
|----------------------------------|----------------|-----------------|-----------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Per Basic Sensor Cost            | 6.50           |                 |                 |                       |                       |                       |                       |
| Sensor Material Cost             | 5x             | -1,300,000      |                 |                       |                       |                       |                       |
| App Development Cost             |                | -1,500,000      |                 |                       |                       |                       |                       |
| Engineering Cost                 | 6              | -450,000        |                 |                       |                       |                       |                       |
| Legal & Compliance Cost          | 20%            | -650,000        |                 |                       |                       |                       |                       |
| # of Street Meters Installed     |                |                 | 20,000          | 40,000                | 40,000                | 40,000                | 40,000                |
| Revenue Hours per Meter per Year | 3,600          |                 | 1,800           | 1,800                 | 1,800                 | 1,800                 | 1,800                 |
| Average Rate per Hour            | 1              |                 | 1               | 1                     | 1                     | 1                     | 1                     |
| Total Street Parking Revenue     |                |                 | 36,000,000      | 73,440,000            | 74,908,800            | 76,406,976            | 77,935,116            |
| Total Revenue from Commission    | 8%             |                 | 2,880,000       | 5,875,200             | 5,992,704             | 6,112,558             | 6,234,809             |
| Salary Expense                   | 10             |                 | -416,000        | -416,000              | -212,000              | -216,000              | -220,000              |
| Maintainenece Expense            | -20%           |                 | -576,000        | -1,175,000            | -1,198,000            | -1,222,000            | -1,246,000            |
| SG&A                             | -15%           |                 | -432,000        | -881,000              | -898,000              | -916,000              | -935,000              |
| Tax Expense                      | -26%           |                 | -748,000        | -1,527,000            | -1,558,000            | -1,589,000            | -1,621,000            |
| Profit                           |                |                 | 708,000         | 1,876,200             | 2,126,704             | 2,169,558             | 2,212,809             |
| Cashflow                         |                | -\$3,900,000    | \$708,000       | \$1,876,200           | \$2,126,704           | \$2,169,558           | \$2,212,809           |
| CAGR of Revenue                  | 16.70%         |                 |                 |                       |                       |                       |                       |
| IRR                              | 30.86%         |                 |                 |                       |                       |                       |                       |
| NPV (based on 15% hurdle rate)   | \$1,628,939.54 |                 |                 |                       |                       |                       |                       |

# FINANCIAL FEASIBILITY – Sensitivity Table

Sensitivity Table

|                      |    | <i>Commission</i> |        |        |        |        |
|----------------------|----|-------------------|--------|--------|--------|--------|
|                      |    | 4.00%             | 6.00%  | 8.00%  | 10.00% | 12.00% |
| <b>Material Cost</b> | 3x | 4.21%             | 22.93% | 38.66% | 52.77% | 65.86% |
|                      | 4x | 1.15%             | 18.91% | 33.74% | 46.99% | 59.23% |
|                      | 5x | -0.66%            | 16.54% | 30.86% | 43.61% | 55.36% |
|                      | 6x | -3.11%            | 13.36% | 27.00% | 39.11% | 50.23% |
|                      | 7x | -5.29%            | 10.55% | 23.61% | 35.17% | 45.75% |
|                      |    |                   |        |        |        |        |