uPark

1st Decentralized Solution for Parking Spots reservations built on Elrond network

Technical Whitepaper

Version	1.1
Release	1.0
Date	18/07/2022

Table of contents

Appendix A – Competitor analysis

Appendix B – Porter's Five Forces Model

Executive Summary

As significantly as technology and industries have evolved over recent decades, parking space management has remained relatively slow to adapt to the needs of modern society's motorists. The age-old problems of lost time, fuel, and traffic congestion still plague areas like city centres, shopping malls, and airports, resulting in increased stress, higher costs at both the individual and city levels, and lost time. In other words, parking management in its current state delivers a poor user experience and can be quite a headache.

uPark presents a mobile-based parking reservation solution that, through innovative use of blockchain and NFT technology, provides a sustainable solution that:

- Helps drivers easily reserve parking spaces ahead of time and navigate to them, reducing uncertainty and stress.
- Reduces the cumulative negative environmental impact of thousands of motorists driving around searching for a parking space.
- Saves time and money at both the individual and city scales.

Aimed to introduce sustainability to the parking management problem space, uPark will be built on the Elrond blockchain, the first European carbon-negative blockchain, to manage its scalable network of parking lots. Additionally, through an innovative NFT campaign, users will have the opportunity to reap rewards by owning digital representations of parking spaces in different cities to generate multiple revenue streams, including advertising, personal NFT marketplaces, and NFT staking.

1. Introduction

The world is going green and supercharging sustainability. Indeed, environmental initiatives are prominent in many industries today, including transportation and parking. Most efforts focus on updating or optimizing infrastructure by incorporating solutions like automated vehicle storage and retrieval systems. While those improvements have their place, they often involve extensive development costs. Fortunately, the answer to parking sustainability may not lie within infrastructure alone.

uPark, a mobile parking reservation platform, has a lot to offer in this area. Aiming to spur global change and shift perspectives on parking, it presents a new opportunity in parking management by enabling drivers to find and book parking spots through their mobile devices.

Many drivers face challenges finding parking in city centres, crowded shopping malls, and other destinations, spending 17 hours per year on average looking for an open spot. In fact, during rush hour, a driver can spend up to 30 minutes seeking a parking space. Consequently, fuel expenses rise, as do emissions and traffic congestion, not to mention the frustration of being unable to find a space when needed.

However, this experience can be rendered more positive and seamless through a smart solution like uPark. It allows people to navigate with greater ease, convenience, and efficiency, in addition to utilizing existing parking spots more effectively.

Less time spent in a vehicle looking for parking offers several benefits. First, it means reduced emissions. It also means less time spent on the road, which keeps traffic and congestion down. But perhaps most significantly, the uPark mobile app helps you take back your time. Beyond the individual, it can also provide benefits at the community level, providing a viable solution for parking sustainability on a mass scale.

Thus, uPark's primary benefits include:

- A substantial positive impact on the environment.
- Introducing sustainability to the parking problem.
- Saving time and money on an individual and mass scale.

Targeting city centres at first, where the most change is needed, uPark will provide a novel solution in parking sustainability.

2. Problem description

Parking spots have become increasingly difficult to find, particularly in crowded city centres. Two main factors position uPark as an ideal solution for this evolving problem:

1. **The number of cars travelling to city centres is increasing, while the number of available parking spaces available is decreasing.**

   Fact: Every day, 500,000 cars struggle to find parking in city centres (based on European capital data). [1]

2. **We live fast and have no time to waste. We value our time and that of our families and prefer to plan ahead.**

   Fact: The average time spent finding parking in the city centre during rush hour is 15 minutes.

   Fact: 25% of drivers park over 500 meters from their destination due to low visibility and availability of parking spots in the city centre.[2]

   Fact: 5% of drivers cancel their plans due to the difficulty of finding a parking spot.

3. The solution – uPark

Taking care of the environment relates to Co2 emission and a question how we might reduce it. In present times, we are faced with a huge challenge to reduce Co2 in all areas of our lives. The same is true for Co2 emissions from our vehicles, which although much cleaner than a decade ago, still emit pollution. The biggest waste in this is when we spend time either in traffic or i.e. when looking for a spot to park in the city center. This is the time when we passively release Co2 into the atmosphere.

3.1 What is uPark?

uPark is a Parking reservation service that partners with parking lots in countries across Europe to provide drivers with guaranteed parking. It is a digital parking marketplace that helps drivers connect with parking lots and book spaces through their mobile devices when planning a trip to a city centre, shopping mall, event, or airport. In this first-of-its-kind network, connected parking spots are accessible through a mobile application secured by the Elrond blockchain, the first green blockchain in Europe. It serves drivers' needs by optimizing their everyday planning, making it easier to look ahead, save time, and reduce stress.

---

[1] https://www.mdpi.com/2071-1050/13/11/6031/htm
[2] https://parkmobile.io/blog/go-green-a-parkmobile-guide/

3.2 Mission statement

To create a sustainable mobile parking reservation solution for areas with a high concentration of cars by improving visibility and guaranteeing parking availability across the EU.

3.3 What is uPark's goal?

uPark is on a mission to reduce:

- The **time** spent looking for a parking spot.
- The **stress** of not finding a parking spot,
- **CO2 emissions and costs** when driving around looking for a parking spot.

Our goal is to acquire parking spots in new cities iteratively at city centres, shopping malls, airports, and events. In 2023, we will aim to promote uPark through strategic partnerships in Poland, after which the lessons learned will be used to scale it across Europe by creating a network of well-optimized, visible, and guaranteed parking spots.

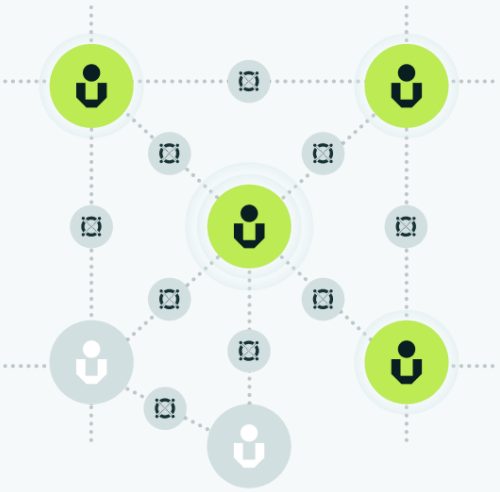

Fig. 1. uPark spots network on Elrond blockchain.

Once the network and user adoption reach a targeted level of usability, new markets and strategic partnerships will be established, and the uPark solution will be implemented across the automotive industry, for instance, by car manufacturers implementing uPark as part of their infotainment systems and electric vehicle charging networks seeking to implement distributed and sustainable solutions for users, investors, and cities.

Moreover, early investors will have the possibility to participate in a growing pan-European business and gain passive revenue from owning part of uPark through its tokenomics and added token utility. The higher the adoption of uPark's solution, the greater the gains for investors willing to participate.

4. uPark Benefits

4.1 For the environment

Taking care of the environment relates to CO2 emission and the question of how we might reduce it. Presently, we face considerable challenges in reducing CO2 in all areas of our lives. The same is true for CO2 emissions from our vehicles, which although much cleaner than a decade ago, still emit pollution. The most significantly wasteful aspect of vehicular CO2 emissions comes from spending time either in traffic or searching for a parking spot in city centres. This is when we passively release CO2 into the atmosphere.

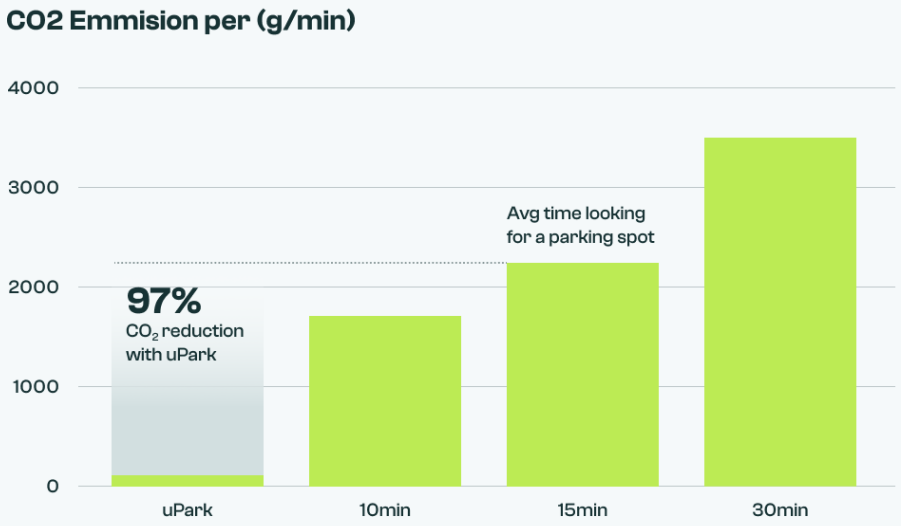

Fig. 2. uPark CO2 reduction vs CO2 emission per car within 10/15/30 minutes time slot.

Fig. 2 above refers to average statistical data based on the CO2 emissions of a single car. Considering that the average time to find a parking spot in the city centre is 15 minutes and the average car's CO2 emission per minute, we observe that this time spent looking for parking corresponds to a release of slightly above 2000g of CO2.[3]

According to available statistical data, a city the size of Warsaw, Berlin, or Liverpool has 16,000 cars entering and leaving the city centre every day. Fig. 3 shows the daily vs yearly contribution of this number of vehicles to CO2 emissions. If the average time spent waiting for a parking spot is 15 minutes, it implies that CO2 emissions can be reduced by approximately 97% through uPark.[4]

3 www.thesun.co.uk/motors/4001964/how-time-spent-searching-for-parking-spaces-is-costing-uk-motorists-23-billion-each-year/

4 https://www.researchgate.net/publication/345161862_Reducing_Parking_Space_Search_Time_and_Environmental_Impacts_A_Technology_Driven_Smart_Parking_Case_Study

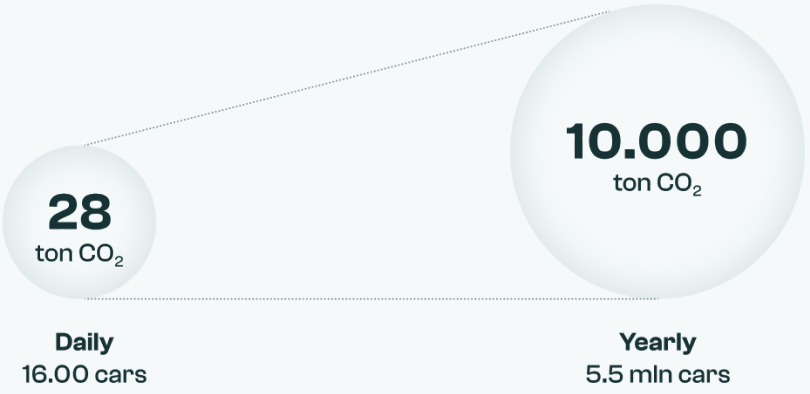

Fig. 3. Daily vs Yearly city center Co2 emission from personal cars based on the average 15 minutes trend to find a parking spot.

Applying average statistical data from Fig. 2 to Fig. 3, it can be concluded that yearly CO2-emission savings with uPark per capital city will be approximately 9,700 tons. The results of this data horizontally scaled over the next five years are presented in Fig. 4. (Elaborated in Section 5).[5]

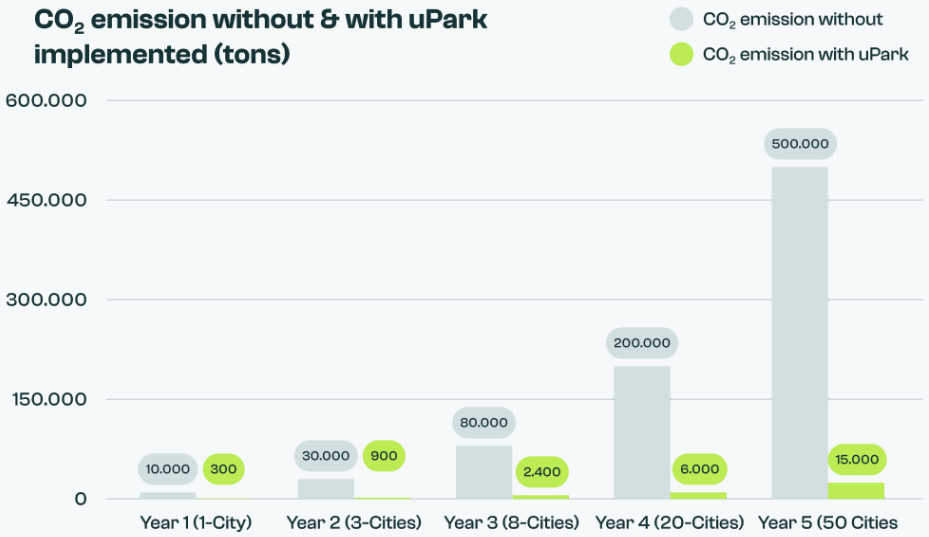

Fig. 4. CO2 emissions with and without uPark, based on the horizontal scaling plan in Section 5.

5 https://www.statista.com/statistics/1233337/carbon-footprint-of-travel-per-kilometer-by-mode-of-transport-uk/

4.2 For sustainable living

Trends show an increasing number of drivers would prefer using mobile apps that provide parking visibility and payment options to book parking spaces. The traditional solution still used today, where you find available parking spots on arrival, does not support sustainable city growth. Instead, it increases the earlier mentioned environmental impact through CO2 emission and exacerbates traffic congestion in city centres while affecting our daily lives by posing another unnecessary unknown. A sustainable solution for this problem does not yet exist in Europe. While some cities like Barcelona are taking steps to tackle it, they have been unable to provide a fully integrated and holistic solution.[6]

Note: Comprehensive competitor and SWOT analyses are provided in **Appendix A.** Porter's Five Forces Model is described in **Appendix B.**

Fig. 5 presents the results of a survey taken by 2000 people aged 19-60 living in a capital city regarding two questions:

Q1. Would you like to use a mobile app that would show you the number of free parking spots and/or navigate you to the parking spot?

Q2. Would you like to book a parking spot directly from your smartphone or car?

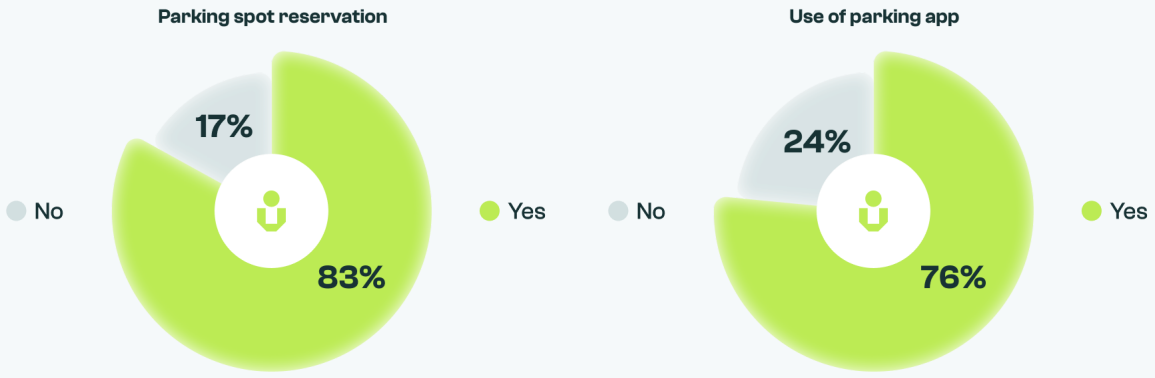

Figure 5: Q1 (left) and Q2 (right) survey results

[6] https://www.parking-mobility.org/2016/02/12/tpp-2015-12-sustainability-and-parking/

Time spent looking for a parking spot is time spent generating harmful carbon emissions. On average, Europeans spend 3,100 hours of their lifetimes searching for a parking spot, with approximately 15 minutes spent per journey. uPark shows that around 95% of this time can be reduced as it directly takes the user to the best suitable parking location at their desired destination. Less time driving means a smaller environmental impact and reduced stress.

Of course, we can't talk about time savings without discussing the costs incurred by burning fuel during that time. As shown in Fig. 6. the relationship between the cost of burning fuel and the time spent looking for a parking spot is as follows.

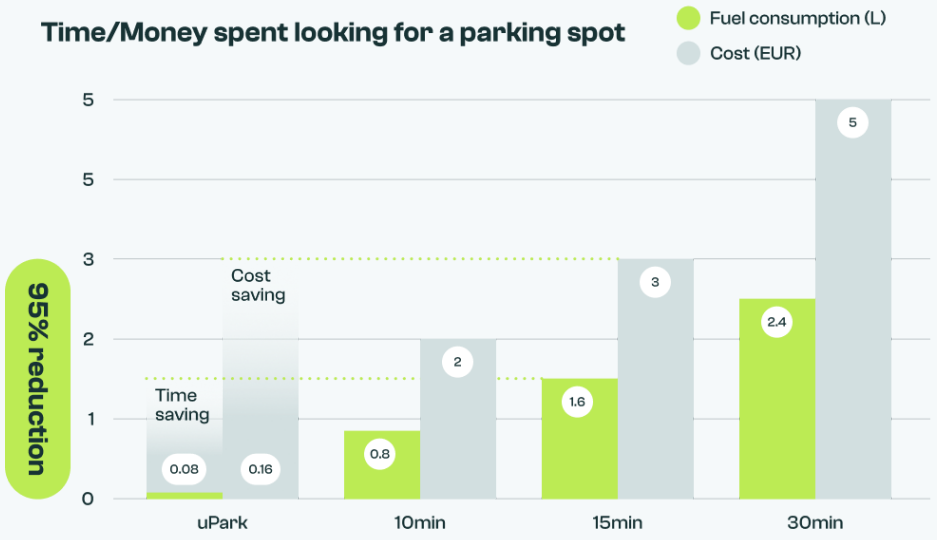

Figure 6: Time/money spent looking for a parking spot

We can observe that using uPark significantly decreases fuel costs while saving time.

5. Market overview & business plan

5.1 Market Trends

The need for parking apps is connected to the need for improved customer service. The smart parking market in Europe is expected to reach a CAGR of 10.11% before 2026. Urban areas are constantly expanding due to their attractiveness for services, work, leisure, commerce, and culture and creating challenges for both municipalities and citizens alike.

According to the European Automobile Manufacturers Association, in 2019, new-car registrations increased by 1.2% across the EU, reaching more than 15.3 million units in total and marking the sixth consecutive year of growth. The surge in the number of vehicles indicates congestion issues related to parking spaces, which are expected to provide opportunities for smart parking vendors in the region.

In December 2019, passenger car demand grew by 21.7% in the European Union, marking the highest December total on record to date. An increase in car sales was witnessed in France at 27.7% as well as in Sweden at 109.3%, due to significant changes to the bonus-malus component of CO2-based taxation for 2020, while the Netherlands (+113.9%) decided to increase the tax on electric company cars from 4% to 8% in January 2020. As a result, all EU countries posted substantial growth rates. Table 1 shows the list of European countries by vehicles per capita by the number of road motor vehicles per 1,000 inhabitants (2). This includes cars, vans, buses, freight, and other trucks but excludes motorcycles and other two-wheelers.

Rank	Country	Motor vehicles per 1,000 people	Total
1	San Marino	1,263	54,000
2	Andorra	1,207	93,000
3	Monaco	899	n/a
4	Iceland	866	315,294
5	Finland	790	4,368,796
6	Liechtenstein	781	30,249
7	Estonia	735	978,022
8	Luxembourg	681	426,346
9	Italy	663	39,545,232
10	Cyprus	645	572,501
11	Poland	642	24,360,166
12	Malta	597	307,130
13	Germany	574	47,715,977
14	Austria	562	4,978,852
15	Slovenia	556	1,165,371

16	Czech Republic	554	5,924,995
17	Switzerland	537	4,624,000
18	Lithuania	536	1,498,688
19	Portugal	530	5,452,119
20	Norway	522	2,801,208
21	Spain	519	24,558,126
22	Belgium	511	5,889,210
23	Greece	504	5,406,551
24	Netherlands	499	8,677,911
25	France	482	32,416,180
26	Romania	357	8,680,244

Table 1. List of European countries by vehicles per capita by the number of road motor vehicles per 1,000 inhabitants

5.2 Business plan

uPark will first target areas with high car concentrations areas like city centres that face the most problems in terms of finding parking spaces. As an example, Warsaw holds a Total Available Market (TAM) of approximately 100,000 parking spots, with a Serviceable Available Market (SAM) of around 30,000 spaces in the most wanted city-centre locations. uPark will initially target 10% of those spots as its Serviceable Obtainable Market (SOM). The business model calculations below are based on that assumption, i.e., with 3000 parking spots operated by uPark in the city centre. uPark's revenue model is based on offering parking fees higher than the conventional drive-in parking option. A service fee will be levied on parking lot owners (city halls, shopping malls, airports, etc.) for uPark's management of those parkins spaces.

Fig. 7. Market Potential per city.

Fig. 7 above summarizes these market potentials, and Fig. 8 provides additional insights into the benefits a similar-sized city can obtain by embracing the uPark solution.

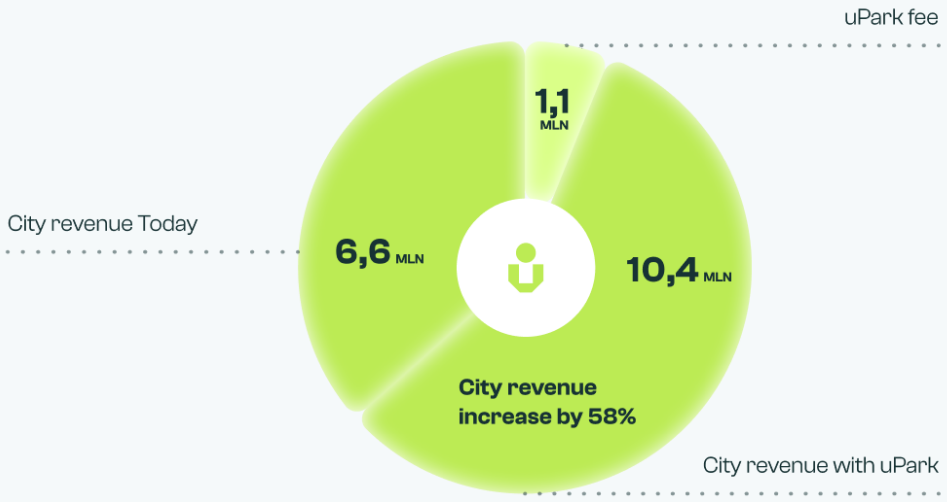

Fig. 8. City benefits provided by uPark (based on Warsaw example), measured in EUR.

5.3 What is the goal?

uPark is on a mission to reduce:

- time spent when looking for a parking spot,
- stress when you can't find a parking spot,
- CO2 and cost when driving around looking for a parking spot.

Equip early investors with the possibility to participate in growing business across Europe and gain passive revenue from owning part of uPark through its tokenomics & further token utility. The higher the adoption of uPark solution, the bigger the gains for investors willing to participate.

Our goal is to acquire parking spots in new cities on an iterative basis (city centers, shopping malls, airports, events) where Year 2023 will aim to promote uPark through strategic partnerships in Poland, where lessons learned will be used to scale it in Europe by creating network of well optimized, visible, and guaranteed parking spots. Once the network and user adoption will reach certain level of usability, new markets and strategic partnerships will take place and uPark solution will be implemented across automotive industry: car manufacturers (implementing uPark as part of infotainment system), EV charging stations creating distributed & sustainable solution for users, investors and cities.

In the first year of acquiring a new city and implementing uPark, the number of reservations is calculated considering the monthly progressive adoption rate, as shown in Table 2. Parking spot utilization corresponding to the adoption rate is assumed to be fixed at 75%, meaning that 75% of all parking spots available in the uPark application are utilized.

Month	Adoption rate	Number of reservations
1	5%	24 375
2	10%	48 750
3	15%	73 125
4	20%	97 500
5	25%	121 875
6	32%	156 000
7	40%	195 000
8	45%	219 375
9	55%	268 125
10	65%	316 875
11	70%	341 250
12	75%	365 625
		2 227 875

Table 2. uPark expected monthly adoption rate and corresponding number of reservations for a city similar to Warsaw.

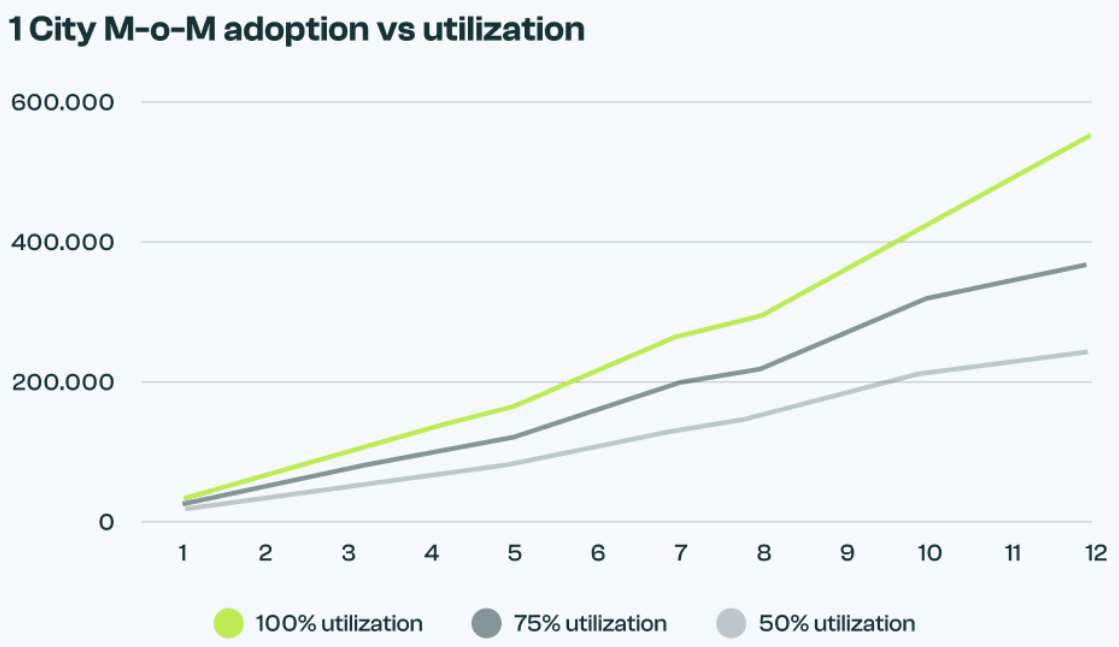

Figure 9: Month-on-Month number of reservations vs utilization.

Parking is an important source of city revenue. By collaborating with and implementing uPark, city halls can increase their net revenue by 58%.

uPark aims to eventually scale its solution across Europe accordingly, with Year 1 focusing on the pilot city to gather data and fine-tune the solution. Once the pilot is in place, the main focus will be business scaling and boosting user adoption to make it ready for new industries and partnerships.

Considering the above adoption rate per city and the three levels of utilization are taken, it is possible to draw projections aligned with uPark's objectives defined in the roadmap. Table 3 summarizes these projections.

Year 1	Year 2	Year 3	Year 4	Year 5
1 City - Pilot	3 cities	8 cities	20 cities	50 cities

Table 3. Projected city adoption scale over 5 years.

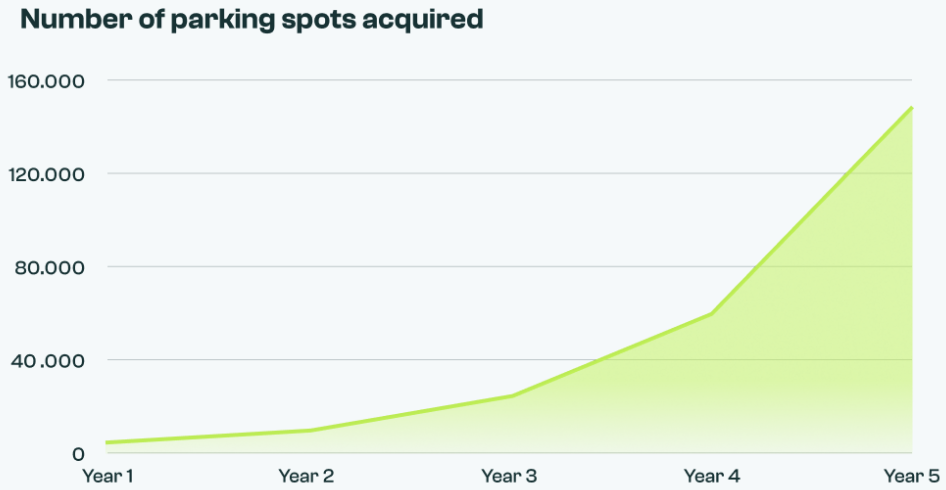

Fig. 10. Projected number of acquired parking spots over 5 years.

Based on the SAM in Fig. 7, the number of acquired and available parking spots will grow together with uPark's implementation in new cities and provide horizontal business scaling, as shown in Fig. 10

Considering a non-linear adoption rate, where the maximum estimated spot utilization is 75%, the estimated number of reservations over a 5-year period will look as provided in Fig. 11.

Fig. 11. Number of predicted reservations in uPark over next 5 Years.

As adoption grows with more acquired cities and an increased number of acquired parking spots, **vertical business scaling** will open more possibilities for new branches of

development, like electric-vehicle charging stations or partnerships with automotive sector companies seeking to leverage uPark's infrastructure.

6. Cryptocurrency model

6.1. The Elrond Blockchain

Elrond is a distributed transactional computation protocol that relies on a sharded state architecture and a secure Proof-of-Stake consensus mechanism.

uPark has opted for the Elrond blockchain for several reasons, including:

- Elrond being the first European carbon-negative blockchain (https://www.elrond.com)
- It is a highly scalable, fast, and secure blockchain platform built for the internet.
- Performance: 15000 current TPS, 6s block time, $0.001 transaction cost, can scale beyond 100,000 TPS
- Secured with 3200 globally positioned nodes.
- Maiar.exchange: Decentralized exchange
- Massive ecosystem
- Developer friendly, with ESDT & NFT tokens
- Global community
- Fast-growing user adoption

Website: https://elrond.com

White paper: https://elrond.com/assets/files/elrond-whitepaper.pdf

Maiar Dex: https://maiar.exchange

7. Tokenomics

UPARK is an Elrond Standard Digital Token (ESDT) used to manage payments across the entire distributed uPark solution. Token owners will be able to:

- Pay for parking services in the uPark mobile app.
- Stake and receive Rewards.
- Swap and trade UPARK tokens once listed on Maiar Decentralized Exchange.
- Participate in liquidity pools and receive rewards.
- Participate in raffles and airdrops.
- Buy NFT collections & receive rewards from multiple streams.
- Participate in DAO & vote on future project decisions.

Token symbol: UPARK

Toke type: ESDT (Elrond Standard Digital Token)

Full ESDT name: UPARK-982dd6

Total Supply: 550.000.000

Remarks:

- Circulating supply will be distributed over time through a vesting and unlocking mechanism, airdrop and presale schedule, and other factors.
- Burning & minting mechanisms will depend on business development performance and other factors described in this white paper.

7.1 Token mechanics

Stage 1

The initial UPARK token will be predefined for each presale and fixed in relation to EGLD. However, it will vary with regard to USD due to the nature of the EGLD coin and the price volatility of the EGLD/USD pair. Once listed on Maiar.exchange, a price discovery mechanism will further settle the price based on supply and demand.

Stage 2

Additionally, the UPARK token value will be strictly tied to uPark's business operational performance and scalability. It will possess both deflationary and inflationary characteristics:

- With every new city acquired (horizontal business scaling) or new branch partnership (vertical business scaling), a specific amount of UPARK tokens will be burnt.
- With a specific number of parking spot reservations, a set amount of UPARK tokens will be minted for further distribution between the staking wallet (85%) and company reserves (15%).

Note: Staking in Stage 2 will bridge uPark's operational business performance and investor willingness to freeze assets in staking pools for extended periods. It will correlate with business performance based on the number of reservations across Europe.

7.2 Token Presale

40% of UPARK's initial token supply will be distributed during presales. Early adopters can participate in five presales, which will be executed as follows:

Presale no.	Presale 1	Presale 2	Presale 3	Presale 4	Presale 5
% of Supply	6%	7%	8%	9%	10%
No. of UPARK tokens	33.000.000	38.500.000	44.000.000	49.500.000	55.000.000

Table 4. uPark presale plan.

All presales will have a vesting and unlocking schedule, delivered through MetaESDT called LKPUARK. This means that presale participants will receive a Locked UPARK (LKUPARK) token with a built-in vesting and unlocking mechanism. In addition, unsold presale tokens will be further accumulated, in which case an optional sixth presale will be considered.

8. Smart contract architecture

To maintain a high demand for UPARK token until we implement various utility tiers for it, UPARK token in current and future presales will be available at a lower price than listed. These tokens will be stored in a vesting contract in which investors will receive an LKUPARK (Locked-UPARK) token similar to LKMEX. In addition, LKUPARK will have limited transferability programmed through three different smart contracts:

SWAPPING

The swapping (buy) process is where one sends a specific amount of $EGLD to the smart contract that will calculate the amount of UPARK token the investor has bought. After that, it will send the bought UPARK token to the vesting smart contract, which will store the given UPARK and mint an equivalent amount of LKUPARK, sending it back to the swap smart contract. The swap smart contract will have LKUPARK tokens that can be sent to the investor.

VESTING

The vesting contract will only receive UPARK tokens. It will mint an equivalent amount of LKUPARK tokens, embedding the unlock schedule into the token attributes and sending LKUPARK tokens back to the investor. This can be called by the swap smart contract and any investor who wants to convert their UPARK tokens to LKUPARK tokens.

STAKING

This contract will only receive LKUPARK tokens (In Stage1). It will reward with an equivalent amount of UPARK tokens, embedding the lock schedule (incorporated through VESTING SC) into the token attributes and sending LKUPARK tokens back to the investor. Meaning STAKING smart contract will reward stakers with UPARK which then will be sent to VESTING smart contract for further locking and Investor distribution. In Stage 2 of staking and when uPark is operational, we will introduce the UPARK buy-back program, where a fixed amount of uPark's net revenue from operational activities will be used to buy UPARK tokens from the market and feed them back to the staking rewards pool.

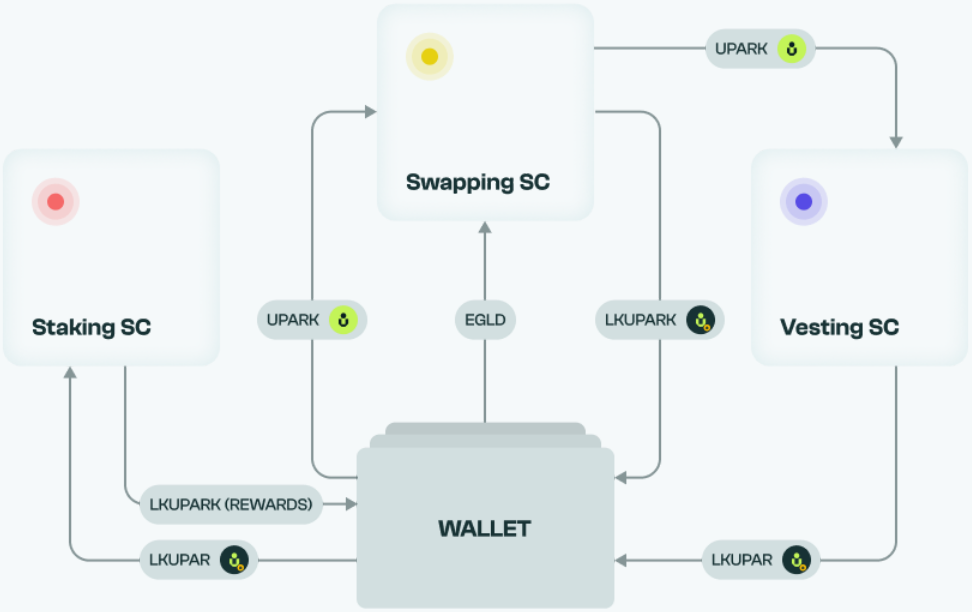

Fig. 12. Smart contract architecture.

8.1 LKUPARK vesting & unlocking

LKUPARK is a MetaESDT token that represents the UPARK token; however, it has a programmed vesting and unlocking schedule. Here are some details about vesting and unlocking:

- The vesting period is set to 4 months for every LKUPARK token.
- The unlocking schedule is set at 25% UPARK unlocking after the 4-month vesting period.
- LKUPARK will have limited transferability between the three above-mentioned smart contracts. If further utility is to be introduced, changes to the smart contracts and LKUPARK attributes may apply.

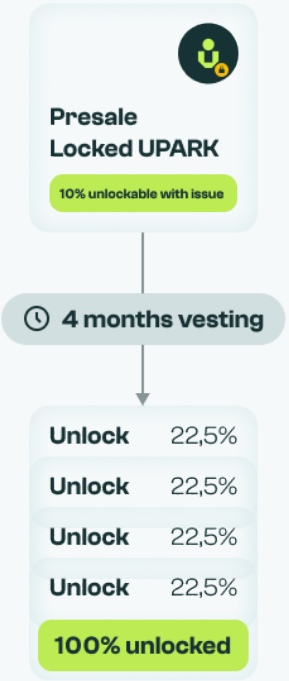

Fig. 13. LKUPARK->UPARK: Vesting and unlocking.

8.2 Staking

Stage 1: Bootstrapping.

The staking wallet in Stage 1 will accept LKUPARK alone, whereas staking rewards will also be distributed as LKUPARK. The vesting and unlocking schedule for rewards will be the same as for LKUPARK received during presales, however taken into account when rewards will be locked.

As per the supply distribution, 10% of the UPARK pool will be distributed over 24 months as staking rewards proportional to the staked amount of UPARK (LKUPARK) tokens.

Stage 2: Rewards from Operational activity.

The staking wallet in Stage 2 will accept both LKUPARK and UPARK, where rewards will be distributed as either UPARK or LKUPARK (depending on user choice). Accordingly, different APRs will be available, i.e., higher APR for rewards in LKUPARK. Moreover, Stage 2 staking rewards will come from two sources:

- With a specific number of parking spot reservations, a specific amount of UPARK tokens will be minted for further distribution between the staking wallet (85%) and company reserves (15%).
- With a specific number of Parking spot reservations paid in fiat, a specific amount of UPARK tokens will be bought back for further distribution between the staking wallet (85%) and company reserves (15%).

Note: The uPark application will integrate with the blockchain, where the relation between the number of reservations and the minting process will be fixed and programmed. This will enable concurrent growth of staking rewards as uPark's operational activity expands. The number of parking reservations will grow with both solution adoption in existing cities, uPark's implementation in new cities (horizontal) and new branches like electric-vehicle charging, car manufacturers, etc. (vertical).

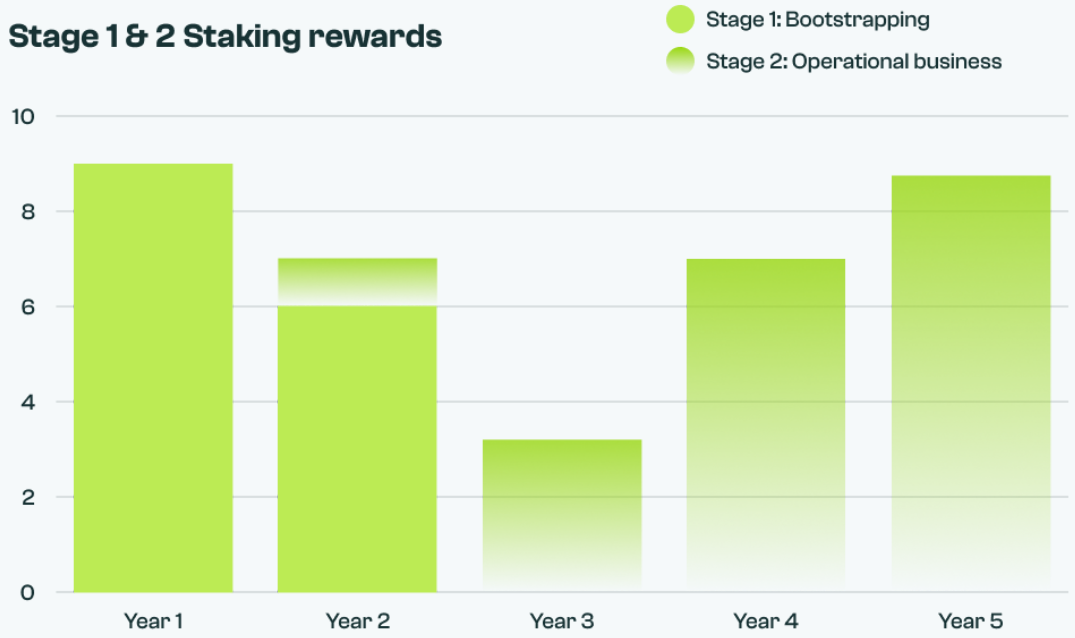

Fig. 14. Staking rewards distribution.

8.3 Team vesting period

To ensure that all users will have their UPARK tokens unlocked before the team, the uPark team members will receive their tokens according to the following vesting schedule:

- Starting in Month 16 from the Token Generation Event, 5% of UPARK tokens from the UPARK team pool will be unlocked every 20 months and distributed to the uPark team accordingly.
- The vesting period for the uPark team ends in Month 36, when 12% of the UPARK token's initial supply will be distributed to the team.

8.4 Airdrops

1% of the UPARK token's initial supply is to be used for airdrops to build awareness of the uPark project through social media.

9. Blockchain business integration

uPark tokens are programmable, permissionless, and transparent. They are programmable as they are controlled by smart contracts, which carry the inherent logic and function of the token and its swapping, staking, and vesting smart contracts.

Integrating blockchain technology in uPark will proactively provide digitally permanent and auditable records that show stakeholders the state of the product at each value-added step, thus simplifying accounting. In this respect, records are also characterized by transparency as the rules and transactions are viewable and verifiable by all, providing investors confidence that their investments go into a worthwhile project.

The uPark application integrated with the Elrond blockchain will possess the following features:

- Distributed big data storage for further algorithmic processing and performance improvements within the uPark ecosystem.
- Full transparency and audit-readiness for all stakeholders (investors, partners, clients).
- A foundation for Web3, bridging Metaverse with everyday life and expanding current and future blockchain.
- A fixed and programmed relation between the number of reservations and the minting process for Stage 2 staking rewards.

10. Bridging the Metaverse and reality

UPARK token owners who participate in staking will be eligible to take part in the NFT campaign. A part of the available parking spots in each city will be digitally represented as NFTs, with different rarities corresponding to different reward levels. Each NFT will virtually represent a physical parking spot and provide its owner with several benefits, thus creating multiple revenue streams as follows:

Fig. 15. Conceptual uPark NFTtoken.

- **Airdrop eligibility:** Different rarity levels will receive corresponding airdrop pools.

- **Rewarding NFT-staking possibilities:** NFT owners will be able to receive rewards through staking.
- **Earn rewards from restaurants, banks, and other partners by offering advertising space on owned NFT parking spots through the uPark app:** As each NFT will represent a physical parking spot, it will have geolocation details describing that physical space. This can be utilized for advertising by, for example, nearby restaurants with whom uPark has advertising agreements. A user who parks in that particular spot can receive ads from those restaurants. Part of the generated ad revenue will go back to the NFT owner.
- **Earn rewards through personal NFT marketplaces:** Some NFTs will become personal NFT marketplaces. People who use the uPark application to park in a particular spot will be shown the NFT collection connected to that parking spot (based on geolocation data) once parked. Now they will have the possibility of making transactions (Buy) and becoming NFT owners promoted in that particular spot. The owner of the main parking spot NFT will also receive royalties.
- **Governance:** NFT owners will be able to vote on core uPark decisions through a Decentralized Autonomous Organization (DAO), with different voting levels based on NFT rarity. Thus, all NFT owners will become decision-makers through the DAO based on the level and number of NFTs they own.

Team

Jakub Smykowski

Co-Founder, Strategy & Execution

Executive MBA, Coupling business & IT to leverage latest available technology for over 16 years. Blockchain, Fintech & Technology enthusiast. Early investor & community member of Elrond network

Florin Iordache

Co-Founder, Technical & IT

Engineering Supervisor Lead with extensive server administration, IT & Blockchain experience. Early investor & community member of Elrond network.

Andrzej Nowak

Business Development & Operations

Executive MBA, project & quality manager in car manufacturing for over 10 years. Experienced in implementation of solutions and products in the automotive software market on global scale.

Alexandru Jilavu

Java Developer, Smart contracts & Blockchain integration

Experienced Java developer, extremely passionate about Blockchain technology & SmartContracts. Quick learner ElrondNetwork enthusiast.

Marius Stoica

Senior Software Engineer, Web3 & Mobile Apps

Experienced Android & iOS Mobile app developer. Helped many car manufacturers to integrate Android Auto in many Infotainment systems.

Roadmap


Planned 2023
uPark implemented in over 3 cities
Over 3 biggest cities across Europe use now uPark for booking parking spots
NFT's now available in uPark app
NFT owners are now able to use full functionality and enjoy revenue streams like: NFT connected advertisement and related fee collection, personal NFT marketplace and others.
uPark solution is ready for scaling
uPark version 1 is being released, where all the fine tuning for the mobile application as well as blockchain integrations are place.
uPark solution pilot stage2
uPark solution pilot has been completed at full city scale. Now uPark solution is available in 1 city, where adoption continue to grow. Planned up to 3000 spots are available for booking.
uPark solution is now integrated to Elrond blockchain
uPark solution is now fully integrated to Elrond Blockchain. Ready to be utilized for further functionality inside uPark ecosystem.
uPark solution pilot stage1
uPark solution has been piloted in Warsaw and final tuned. Making it ready for a full city scale adoption.

Planned 2024

uPark implemented in over 8 cities
Over 8 biggest cities across Europe use now uPark for booking parking spots and other offered services.

Apple car play and Android auto ready
uPark solution is now integrated with Apple car play and Android auto, allowing full functionality.

Booking platforms partnership
uPark partnerships and integrates with booking platforms like: booking.com, AirBNB, Booksy etc. where it becomes integral part of the service offered.

Airports partnership
uPark continue to scale vertically and acquires partnership with airports in cities where solution is already implemented.

Booking platforms partnership
uPark partnerships and integrates with booking platforms like: booking.com, AirBNB, Booksy etc. where it becomes integral part of the service offered.

Private NFT marketplace (Buy NFT connected to uPark NFT)
uPark application users that park in a particular spot can purchase NFT collection connected to that parking spot: geolocation data enabled. NFTs promoted in a specific parking spot will be directly connect to uPark NFT (called owning NFT) that receive royalties.

Planned 2025

uPark implemented in over 20 cities
Over 20 biggest cities across Europe use now uPark for booking parking spots and other offered services.

EV chargers
In addition to parking spot reservations, uPark will enable possibility to book EV chargers. The solution will be implemented both in uPark mobile as well as in the car infotainment systems.

Volvo and Volkswagen group partnership
uPark becomes integral part of infotainment systems across the automotive brands Volvo and Volkswagen group: VW, Audi, Skoda, Seat.

3D NFT's - Metaverse ready
Owners of uPark NFT's are now able to utilize them in virtual and extended reality, where NFT functionality follows 3D reality rules: 3D personal NFT marketplace linked to a parking spot, advertisements in Holoride connected solutions and many more.

Planned 2026

uPark implemented in 50 cities
50 biggest and busiest cities across Europe use uPark to book parking spots and other offered services.

Stellantis N.V. partnership
uPark becomes integral part of infotainment systems across the automotive brands belonging to Stellantis N.V.: Fiat, Alfa Romeo, Citroen, Jeep, Opel, Peugeot

Appendix A – Competitor analysis

We will consider apps that offer parking management technologies. A detailed comparison is presented in the table below. Direct competitors with SWOT-analysis are presented in the table.

COMPETITOR	EASYPARK	PARCLICK	ONEPARK	APPYPARKING	PARKBEE	PARKPNP
COMPANY WEBSITE	Link	Link	Link	Link	Link	Link
HEADQUARTERS	Stockholm, Sweden	Madrid, Spain	Paris, France	London, UK	Amsterdam, Netherlands	Dublin, Ireland
FOUNDED	1997	2011	2013	2013	2013	2016
AVAILABLE ON THE APP STORE?	Yes.	Yes.	Yes.	Yes.	ParkBee does not have an app itself. All the ParkBee garages are exclusively accessible through the Parkmobile or Park-line app.	Yes.
AVAILABLE ON THE GOOGLE PLAY?	Yes.	Yes.	Yes.	Yes.	ParkBee does not have an app itself. All the ParkBee garages are exclusively accessible through the Parkmobile or Park-line app.	Yes.
BRAND OVERVIEW & PROFILE	Smart parking services that have been helping drivers find and pay for parking. On a larger scale, the technology helps businesses, operators and cities with parking administration, planning and management.	Parclick is an online platform to find and book parking spaces. Parclick is simple and intuitive: locate yourself using the GPS finder or search for a destination using the app, choose between special offers on car parks in the area, and book your parking	Onepark is a mobile app and online car park booking platform, allowing you to compare, book and pay for your parking space.	It is a kerbside management and smart parking solution lets users check for parking spaces via its app. It lets users check for parking spaces near their desired destination and charges them automatically on a per minute basis.	ParkBee is a Netherlands-based intelligent parking platform that allows users to find, book, and rent automobile parking spaces. The technology of this startup lets users access the parking locations via apps such as Park-line and Parkmobile.	A service that helps people to find a perfect parking space. It is also a marketplace that lets people list, advertise and generate income from the unused parking spaces.

		spot directly from the app.				
MARKET COVERAGE	Over 25 countries, Over 3,200 cities, Over 2,300 parking operators.	8 countries, 240 cities, 1,800 car parks, 470 airports, harbours and stations.	9 countries, 275 cities, 40 airports, Over 2,000 car parks.	1 country, 450+ towns and cities.	6 countries.	6 countries.
ACTIVE EUROPEAN MARKETS	Austria, Belgium, Denmark, Finland, France, Germany, Hungary, Iceland, Italy, Liechtenstein, Montenegro, Netherlands, Norway, Portugal, Serbia, Slovenia, Spain, Sweden, Switzerland, United Kingdom.	Spain, France, Italy, Portugal.	Belgium, France, Germany, Italy, Luxembourg, Netherlands, Portugal, Spain, Switzerland.	United Kingdom.	Belgium, Ireland, Germany, France, Netherlands, United Kingdom.	Belgium, Ireland, Netherlands.
OTHER MARKETS	Australia, Canada, New Zealand, the United States.	No.	No.	No.	No.	Brazil, Sri Lanka, the United States.
LANGUAGES	English, Bosnian, Catalan, Croatian, Danish, Dutch, Finnish, French, German, Hungarian, Icelandic, Italian, Norwegian Bokmål, Portuguese, Serbian, Slovak, Slovenian, Spanish, Swedish	English, Catalan, Dutch, French, German, Italian, Spanish.	English, French, Spanish.	English.	English, Spanish.	English, French, Dutch.

SERVICES	Mobile paid parking [Link], Parking data as a service [Link], Smarthub [Link], Permits [Link], Find [Link], Parking dashboard [Link], Off-street access [Link], EV charging [Link], Guest parking [Link], In-car solutions and integrations.	Find your car park (write an address, hotel, restaurant, airport), Compare and book (see prices, distance, customer reviews), Park (upon arrival, just show your reservation in the car park).	Find a last-minute parking space or book in advance. Receive confirmation and find the information you need to access your car park. In case of unforeseen circumstances, cancellation and modification are free.	Find free parking, In-app navigation, Walking distance, Payment links.	Find a car park (Use the search map on our website to find a parking space. Calculate the price for your booking by selecting the time and date for the duration of your stay), Pay, confirm and follow the instructions for how to access the car park which are detailed in your email confirmation.	Reserve a space in seconds, See the total cost before you book, Park your car in seconds.
FEATURES	Cashless parking, FIND navigation helps people to locate on-street parking slots, Pay only for the time you park, etc.	Passes by hours / days, Multi-location passes, Monthly passes.	Filters for a parking space in the city centre, at the station or airport at the best price. Whether the time: for a few hours, for your holiday, a weekend, etc.	Search by parking location, time & duration. Full operating hours and tariffs for all paid bays. See all zones and parking bay types, One Click Parking, etc.	A wide and dense network of off-street parking spaces.	Off-street and on-street parking options, Easy payment, etc.
PAYMENT OPTIONS	A wide range of payment options including PayPal and credit and debit cards (Mastercard & Visa).	Credit and debit cards (Mastercard & Visa), PayPal.	Credit and debit cards (Mastercard & Visa).	Credit and debit cards (Mastercard & Visa), PayPal.	Credit and debit cards (Mastercard & Visa), PayPal.	Credit and debit cards (Mastercard & Visa).
TECHNOLOGY PARTNERS	Apple, Here, IBM, Parkopedia, Telia.	N/A.	N/A.	N/A.	N/A.	N/A.
MOST POPULAR COUNTRY	Sweden.	Spain.	France.	The UK.	Netherlands.	Ireland.
PRICING	EasyPark Small (standard) – You pay 15% of the parking costs as a service	Varies depending on the location.	Varies depending on the location.	Premium: Turn-by-turn navigation to nearest parking, Full	Varies depending on the location.	Varies depending on the location.

	fee per started parking. There is no monthly subscription fee. EasyPark Large – You pay 59 SEK (5.6 EUR) as a monthly fee and no service fee, only the actual parking costs.			restriction details for all bays, lines and zones, Daily timeline view for all bays, lines and zones, Weekly operating hours for all bays, lines and zones. Premium Monthly – £4.99. Premium Yearly – £44.99. Premium 6 Months – £24.99.		
ESTIMATED ANNUAL REVENUE	$25-100M	$9M	$4M	$147,300 (in 2022).	$5.0-25M	<$1M
NUMBER OF EMPLOYEES	500-1,000	45	100	3	100-250	<10
FUNDING	$0	$840.6K	$34M	€11.5M	$41.2M	$568K
WEBSITE / APP PRESENCE	Website / App Presence: Excellent Navigation: Excellent Content: Excellent	Website / App Presence: Good Navigation: Good Content: Good	Website / App Presence: Good Navigation: Good Content: Good	Website / App Presence: Excellent Navigation: Excellent Content: Excellent	Website / App Presence: Good Navigation: Good Content: Good	Website / App Presence: Good Navigation: Good Content: Good
# OF FACEBOOK FOLLOWERS	61,244 followers.	279 followers.	6,033 followers.	26 followers.	1,910 followers.	2,100 followers.
# OF INSTAGRAM FOLLOWERS	No page.	No page.	No page.	No page.	539 followers.	462 followers.
# OF TWITTER FOLLOWERS	No page.	No page.	614 followers.	351 followers.	496 followers.	1,493 followers.
# OF YOUTUBE FOLLOWERS	1,830 followers.	No page.	No page.	No page.	No page.	No page.
# OF LINKEDIN FOLLOWERS	10,915 followers.	7,589 followers.	3,455 followers.	4,831 followers.	4,837 followers.	668 followers.
INSTALLS	Play Market: 10,000,000 +.	Play Market: 100,000 +.	Play Market: 50,000 +.	Play Market: 10,000 +.	Play Market (ParkMobile): 5,000,000 +. Play Market (ParkMobile): 100,000 +.	Play Market: 10,000 +.
REVIEWS	Play Market: 4.5 out of 5 (based on the	Play Market: 4.1 out of 5 (based on the	Play Market: no rating.	Play Market: no rating.	Play Market: 3.8 out of 5 (based on the opinion of 51,100 people).	Play Market: no rating.

	opinion of 70,500 people). App Store: 4.7 out of 5 (based on the opinion of 884 people).	opinion of 2,380 people). App Store: 4.5 out of 5 (based on the opinion of 71 people).	App Store: 3 out of 5 (based on the opinion of 2 people).	App Store: 3.3 out of 5 (based on the opinion of 194 people).	App Store: 4.8 out of 5 (based on the opinion of 1.2M people).	App Store: 1 out of 5 (based on the opinion of 2 people).
STRENGTHS	1) Mobile Parking Payment makes parking easier. 2) Digitalizing parking permits simplifies the issuing process for both the city and the drivers. 3) Adding gated parking garages to the digital ecosystem helps the city reduce on-street parking. 4) Optimization of parking search for drivers by guiding them to	1) Mobile Parking Payment makes parking easier. 2) Availability of Multi-Location Pass. 3) Suitable for all kinds of vehicles (cars, motorbikes, vans, etc.)	1) Mobile Parking Payment makes parking easier. 2) The startup has raised funding from AccorHotels, Groupe ADP, Keolis and business angels Christophe Courtin and James Blouzard.	1) Mobile Parking Payment makes parking easier. 2) In-app navigation, where you can drive directly to the best parking spot near your destination. 3) The startup has raised funding from M12, Aviva Ventures, Microsoft Accelerator, Rosemont Group Capital Partners LLC, Freddie Achom,	1) This Dutch startup is an alumni from Yes!Delft tech incubator. 2) This startup has raised funding from Horizon 2020 SME instrument, InnovationQuarter and Statkraft Ventures.	1) Mobile Parking Payment makes parking easier. 2) This startup has raised funding from Enterprise Ireland and Business Venture Partners BVP. 3) This startup offers everyone an opportunity to invest in the car parking of the future with its crowdfunding campaign at an entry fee of €100.

	available parking.s			Jason Ballard and Breed Reply.		
WEAKNESSES	1) Judging by the reviews, there are lags with GPS. 2) For payments above 9 euros, the minimum amount on the card is 18 euros.	1) There are problems with the consumer support centre. 2) A client can't choose a parking zone if they are away from the car. 3) Funds are debited from the internal wallet of the application, and not directly from the bank account (the money gets frozen and there is no way to get them back).	1) Lack of customer reviews. 2) There are problems with the consumer support centre.	1) Some map problems: the navigation map does not work horizontally, only vertically, the maps take a while to refresh as they have a lot of unnecessary information. 2) There are problems with the consumer support centre. 3) Lack of geographical coverage.	1) ParkBee does not have an app itself. 2) There are problems with the consumer support centre.	1) The app can't verify some international cellphone numbers. 2) There are problems with the consumer support centre.

OPPORTUNITIES	1) Better client service. 2) Attracting large clients for brand development. 3) Conduct more active marketing strategies. 4) Publications in major media.					
THREATS	1) Non-recognition of technology by consumers. 2) New technologies developed by the competitor or market disruptor. 3) Entry of new competitors into the market. 4) The emergence of new customer needs for better services, technologies.					
COMPETITIVE ADVANTAGE	Market leader (the best coverage in Europe).	Active in the Spanish market (Barcelona, Madrid).	Great amounts of funding.	They hold a large market share in the UK.	It works through other large mobile applications.	Crowdfunding campaign.

Appendix B – Porter's Five Forces Model

1. **Competition in the industry.**

There are a small number of competitors on the market that offer similar services. Most of the projects are startups. Since companies mostly cover a small number of countries and cities, and traffic in European capitals is saturated, competition in the market is relatively weak. According to customer reviews, technology is not always user-friendly, which allows new companies to attract consumers. On the market, almost every application with an improved feature finds its share. Thus, the threat is 2 points.

2. **Potential for new entrants into the industry.**

Barriers to entry are limited by the financial capabilities of the projects. Since the topic of smart parking is now on the agenda of the European authorities, many projects in this area are being funded. Therefore, the market is sympathetic to a number of new participants. Only the saturation of the market can stop it. The threat is 4 points.

3. **Power of suppliers.**

The intermediary platforms are Android and iOS. There are no threats from them. But agreements with various parking lots are needed, which adds to external threats – 3 points.

4. **Power of customers.**

The power of buyers is very large. This means that you need to invest in advertising and new technologies to attract potential buyers. The threat is 5 points.

5. **Threat of substitute products.**

The application under study is already a substitute product for basic parking. Therefore, there are no threats from this side in the near future. Further improvement of the technology will minimize the risks of new substitutes. The threat is 2 points.