THESIS REVIEWER'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Crowdsourcing Platform for Finding Vacant Parking Spaces**
Author's name:	**Bc. Kirill Kazakov**
Type of thesis :	Master thesis
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Computer Science
Thesis reviewer:	Ing. Anton Kretov (external)
Reviewer's department:	SentinelOne

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	Extraordinary challenging

How demanding was the assigned project?

The project assigned to the author consisted of a complete development lifecycle of a typical SW project. First, the project required a thorough analysis of the competition and its pros and cons, including the evaluation of missing features. Second, the project, while serving a single purpose, comprises considerable effort required prior to the actual implementation, i.e. requirements gathering, use cases identification and description, roles distinction, bottlenecks, and external dependencies identification - a crucial risk factor oftentimes overlooked in the industry. Third, the project was designed as a mobile application deployed on several platforms (iOS, Android), incorporating numerous integrations. e.g. navigation services, database communication, user authentication, movement detection, cloud-based backend integration, etc. Finally, the user-acceptance testing (UAT) phase included several scenarios covering the general usage of the application, together with the evaluation and discussion of the results.

That said, the project can be considered as demanding and since being implemented by a single developer, required a broad range of skills and knowledge from such spheres as SW analysis and architecture, SW engineering, testing, cloud computing, authentication and SSO, and frontend development applied to mobile applications.

Fulfilment of assignment	fulfilled

How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.

The assignment is fulfilled without any minor objections.

Methodology	correct

Comment on the correctness of the approach and/or the solution methods.

The approach chosen by the author mimics the way the SW projects are designed and implemented in real-world SW engineering. Given that the reality often assumes that such SW projects are implemented by a team of people with different or overlapping competencies and skill sets, the fulfillment of such a project by a single person, especially delivered on time without assignment violation, is noteworthy, which is the best indication of the correctness of the approach.

Technical level	A - excellent

Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?

It is apparent that both the depth of the student's expertise in the problem he solved and the extent to which the thesis is written are on a high level and encompass the abundance of knowledge and experience that the author gained during his studies. In addition, it should be stressed that the work proves the industry experience of the author and suggests that the author has experience with a similar assignment - either during his scholarship at the university or the regular work in a SW development company. Moreover, the thesis demonstrates the author's ability to design a system from scratch, which is a critical skill that is rarely gained without extensive work experience going beyond school assignments or semestral projects.

Formal and language level, scope of thesis	A - excellent
Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?	
The thesis is written with a sound level of technical English and negligible grammatical mistakes. Given the scope of the assignment, the volume of provided information is adequate and describes the accomplished task well, even though it is more elaborate in the first chapters and more concise in the technical chapters.	

Selection of sources, citation correctness	A - excellent
Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?	
The sources selection is decent and corresponds to the type and level of work done by the author.	

Additional commentary and evaluation (optional)
Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.
The work is incentivized by a real problem found in Prague and suggests a novel approach to finding parking lots in the city. Simultaneously, it serves as a starting point for the digitalization and unification of the drivers' agenda and, if the development continues, may help to some extent with the complex parking problem in Prague. Personally, I would love to use such an application. I find that crowdsourcing is an adequate and promising measure to secure data recency and correctness while pointing at lots of operational issues that parking may possess, e.g. identification of parking violations by unauthorized or unpaid parking by irresponsible drivers. I see great potential and added value in this initiative.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

The thesis is a strong demonstration of the author's experience and skills that he gained during his studies. The author proved that he is capable of applying SW engineering knowledge in solving a real-world problem, including the in-depth dive into the domain of the problem, identification of key entities and requirements, then analysis of the target solution and consequently the implementation of the working MVP together with user acceptance testing. Additionally, the problem the author attempts to solve is not artificial, but an existing one, thus making this contribution more valuable. I would still like to ask several questions regarding this work:

1. *What was the hardest part of the project? What were the challenges you have faced and how did you overcome them? Did you have to change your original idea due to them?*
2. *What is the purpose of the "Transport Mode Detection" function (chapter 7.4.7)? How is it useful given the context of the application and its purpose?*
3. *What types of "rewards" or incentives would you suggest giving to the users of your application given your expertise with the crowdsource-based projects?*
4. *How scalable is your application given your decision to adopt a Backend-as-a-Service solution? How would you combat the increasing traffic of users? What are the performance bottlenecks of your application?*
5. *Given your survey of monetization options, what would you suggest adopting in your application if it were to be released as a product serving thousands of customers? How successful could these be given the location and societal factors?*

The grade that I award for the thesis is **A - excellent.**

Date: **10.6.2024**   Signature: