

THE VIRTUAL UNIVERSITY - A CONCEPT NEEDED IN A SUSTAINABLE DEVELOPMENT

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ABSTRACT

Taking into consideration the fact that the system management is in a continuous development, the help, based on technological means, is lead to the organizational domain. The lack of a proportioned system, organizationally speaking, leads, in most cases, to the decrease of the students' performance. This is how we intervene in this process: we come up with new ideas to improve the current plethora of technological means.

The gap between students and their professors could be removed with only a click or at the push of a button. The platform is intended to come in handy to the needs of the students, as well as the professors' needs, through building a bridge that assures the communication between those two parties in real time. Using the user's location, the application would facilitate his access to the rooms in which he has to study, providing input of the current location and the finish location. Such an application should be introduced in any organization whose activities are happening in an internal space.

This would ensure that the human circuit is going smoothly without any stops, because it would reduce the response time. The time, taken as a reaction time, is the most important measuring unit in the area of technology, and therefore, if we can shorten it through this application, it would be innovative.

KEYWORDS: virtual university; maps; university application;

1. INTRODUCTION

In the past, smartphones were a bit less used than they are nowadays. They have been improved with time and their functions developed according to the users' needs. Statista website showed the connected device usage rate in Romania as of March 2014 :

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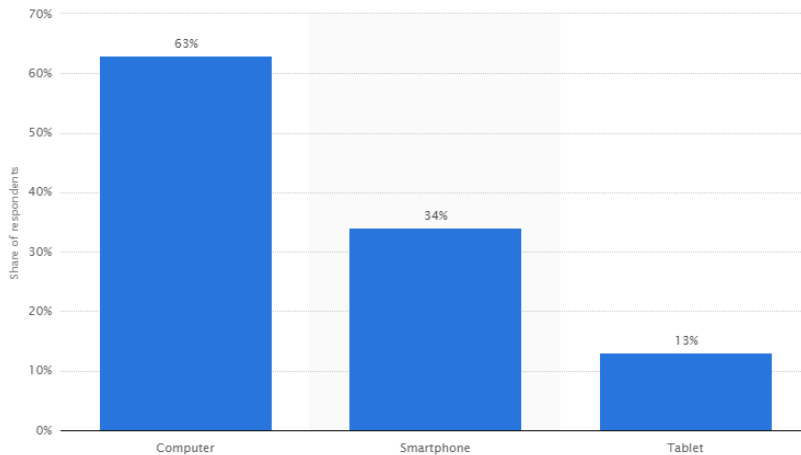
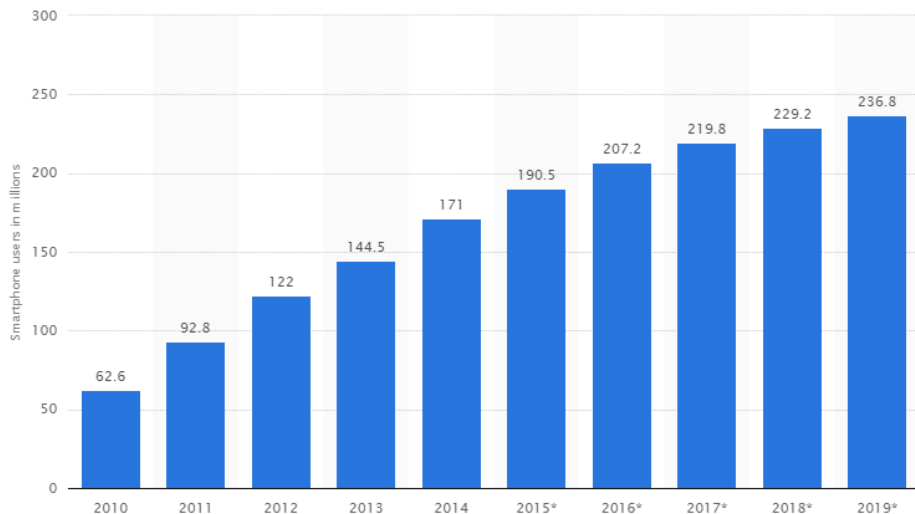


Figure 1 [1]

This graphic shows that the use of smartphones in 2014 was almost doubled by the use of computers, whereas tablets play an insignificant role compared to the other two. Undoubtedly, smartphones developed rapidly and became a breakthrough in this day and age.

Moreover, the graphic shown below reveals the evolution and predictions made until 2019 of the number of smartphone users from the United States:

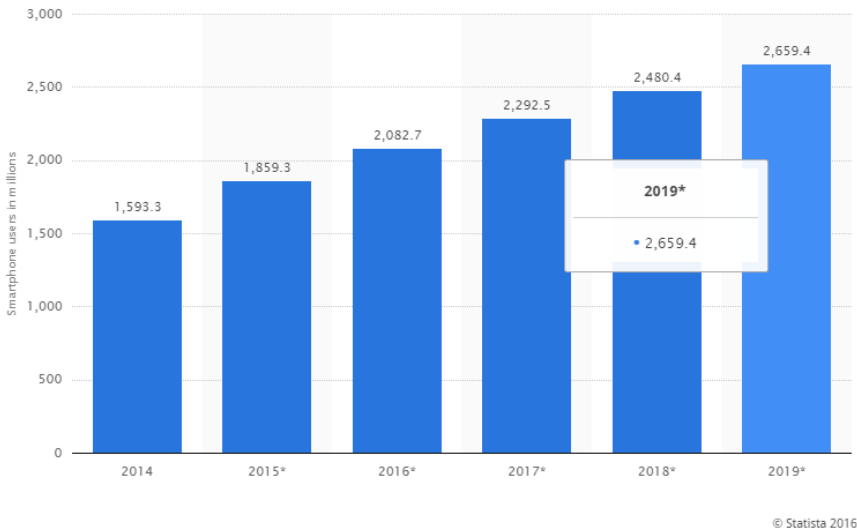


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Figure 2 [2]

This indicates that the number of smartphone users is having a sharp increase, estimated to reach 236.8 millions of users in 2019 only in US.

Regarding the number of users worldwide, it could be pointed out that the number of smartphone users all over the globe could even reach 2,659.4 millions in 2019.



Graphic no.3 [3]

To add more, the most significant uses of a mobile phone have changed with time. Users' needs have become somehow different compared to a couple of years ago. A powerful example would be The Cisco® Visual Networking Index (VNI) Global Mobile Data Traffic Forecast Update's [3.1] study on major global mobile data traffic. For example, users need more mobile data nowadays than they needed even one year ago.

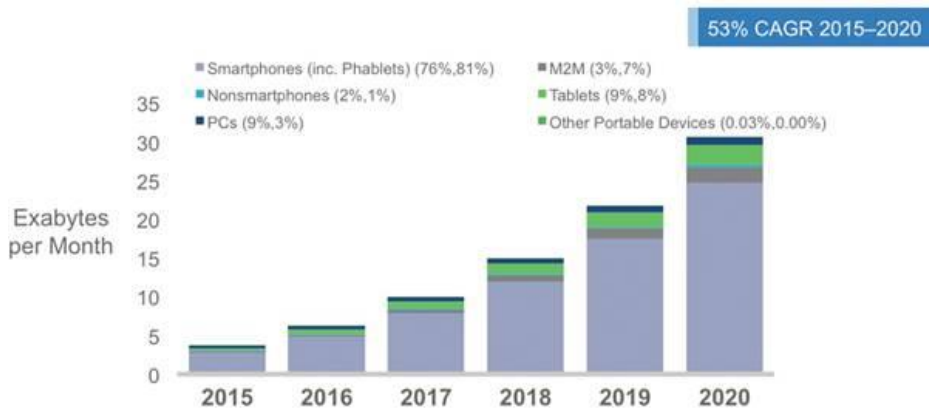


Figure 3 [3]

According to the figure above, the number of Exabytes ($=10^{18}$ Bytes) consumed per month has almost doubled in one year, until 2016. The predictions are that the data consumed in 2020 will be equal to five times the data consumed in 2015.

Thus being said, since smartphones took over the market, they have developed and adapted to the users' needs, trying to cover up all of the features needed by the users.

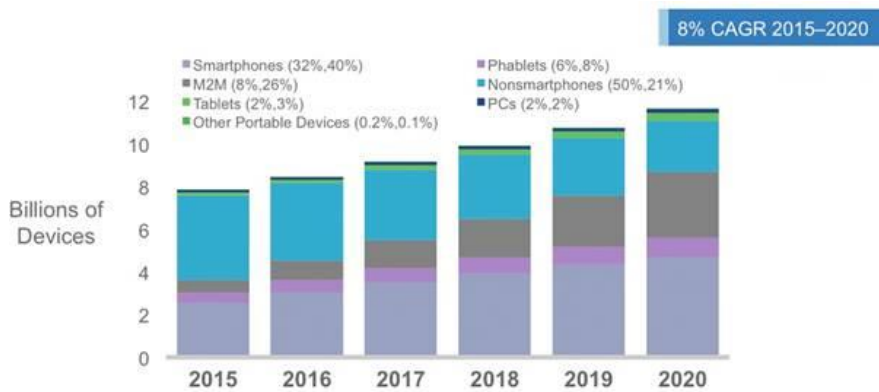


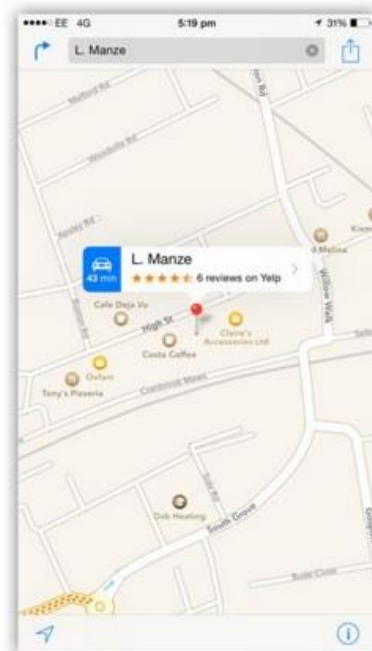
Figure 3.2 [3.2]

In the past, phones were usually used to make calls and send text messages. Nowadays, with all of this technology available, they have developed more functions to ease users' lives. Compared to 2014, when calls were no longer in top 5 uses of the mobile phones [3.3], a new application is needed. Maps play an important role in everyone's lives, as they shorten the time on route. Moreover, mirror.com revealed that "one in six claimed they would be unable to get around an unknown city without a navigation app on their smartphone".

A relevant example that has developed rapidly would be Google's or IOS's Maps application.



Google Maps



iOS maps

Figure 4 [4]

However, although very useful in their complexity, those applications do not provide input for the interior of the buildings, be it a school, university or even a corporation. The most efficient way to make this possible would be to create an internal map for each of the buildings listed before.

As an interconnection between those maps would be useful, all of them can be linked to a mother-map. This can lead to a complete map of an area, of a town, a map that includes interiors. This map will be available to all of the users and, by connecting to this application, they will not need to find out the interior's whereabouts.

The concept is relevant as it brings a new response time, shorter than the time spent on finding one room without any technological means. The amount of time one will arrive in a certain place will diminish significantly. Also, everything will become more practical, because one will not need to talk directly to a person. Instead, one will only have to open your application. It comes as a helping hand to those who need a better time management, those who are always late or even those who want to discover new things.

The application would mix numerous currently existing concepts, such as messaging and e-mail, the map itself, the user's profile that should contain mandatory data (name, university) and optional data. The application collects data based on the user's routes which are saved in a history and it offers them as "Favorites" or "Recommended" in the next sessions. It should be connected to the user's phonebook to synchronize the data collected from both parts. That being said, the application can be used as whatever the user wants and needs.

The only downside that could create problems would be the high level of internet data consumed. This level can be reduced by the use of wi-fi signal instead of mobile data. The graphic below shows fixed and mobile data consumption and GDP (Gross Domestic Product) per capita in eight geographical regions and Romania in 2013 :

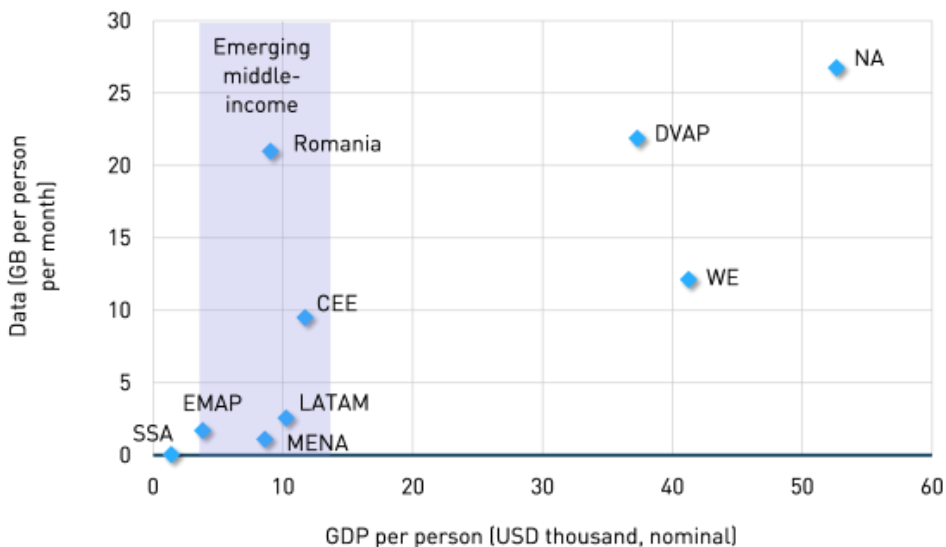


Figure 5 [5]

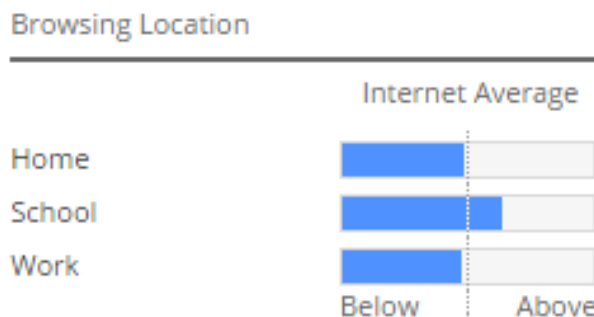
According to the same website, analysysmason.com, in Romania, where 1Gbps access can cost as little as USD15 per month and GDP per capita is USD9000, this rises to 21GB per month. Although the price for mobile data may not be that affordable for students, offering students a wireless internet connection to facilitate work and study in today's increasingly mobile world should be mandatory.

An unexpected result would be to lose potential or current clients, loss caused by bugs or too much network data lost. The application, collecting data and asking for permission to capture the screen, can be easily corrected. If it is the case of an unaccessible button, the application would show an error message and then would close. This screenshot would be sent through anonymus means to those who created it and, afterwards, they would solve the problem. Updates will be possible and they can be made even by the users, but will be acquiescented only by the university's staff before it comes online. Thusly, the worst case scenario would be to lose a large number of users. If this is likely to happen, then the application would regulate potential errors to renew the number of users and will stimulate users' attention by creating a bridge between them and their teachers.

2. MATHERIALS AND METHODS

After analyzing the market and students' daily life, we can say approximately what things are the most useful to them. The majority of smartphone owners has an application for socializing and most of them use "facebook". The use of "facebook" for getting information about the schedule or rooms will not be necessary anymore because of this new application on the market.

A recent study shows that the "facebook" application is browsed the most in schools, according to alexa.com :



Graphic no.6 [6]

Maybe its use is not entirely due to the misunderstandings regarding the schedule or the rooms, but what is for sure is that the traffic on this application, "facebook", will decrease when the users are not to open it and memorize the schedule and rooms. They, instead, will access the application through which they can access all the information needed for a day in the university.

Because the main aim is to minimize the response time and the action time of one student, every second matters. Through the application, accordingly, we can get the data we need

without opening an internet browser. Opening a browser can cause delays if the browser is inaccessible or its interface is not known to the user or is complicated to understand.

The same website shows a study on the amount of time that is used by “facebook” to be loaded.

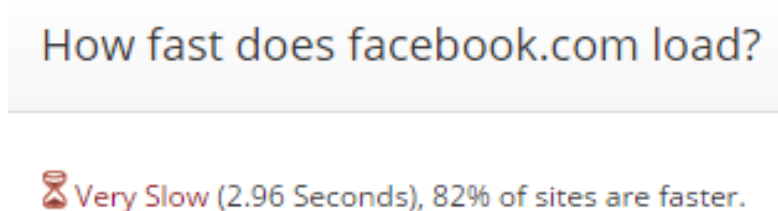


Figure 7 [7]

Because of the fact that facebook.com is very slow and 82% of sites are faster than it, users choose, by all means, to use the application instead of the browser. This fact will happen step by step with most of the top websites to optimize the traffic.

The most efficient way through which we can monitor and structure the changes undergone in such environment is to create an interactive platform. The platform, which has data update possibilities made by professors and also students, offers access to a database that can be accessed by all of the members in the university’s personnel.

The application will be made of numerous parts: the messaging part, that resembles to an e-mail application, the map part and the schedule part, that can be even integrated in the map. To benefit from all of these, users will have to create an account. One will log in with his/her telephone number whereas the application has access to its phonebook. Another significant detail would be the mandatory field “University”, where the user has to write the university where he/she studies. The name, the university and the telephone number will have to be public fields that can be viewed by all of the other users and also by the professors.

After taking a survey among colleagues in our university, this application is wanted to be used daily and must be accessible from all the mobile devices. This can elude the simultaneous use of an internet browser, messages and an e-mail application. The platform would harmoniously combine those three technologies, along with other numerous possibilities of communication, facilitating the user’s access to the schedule information, rooms and so on.

The application’s interface should be easily intelligible to offer the user easy access to all that one wants. At the same time, those parts that form the application will also exist separately, as tiles or any other way of arranging that is easy to access. Simultaneously, they will be interconnected.

The application will be practical and accessible. It will look like a 3D-map, like a space where users wander. Each user can choose how its character is represented on the map : they can choose an arrow pointing up in front of him/her or can choose to see the whole image, where the others are pointed with arrows above their heads. Each arrow which is above a student or a professor allows the user to click on it. When one presses click, listed

next to his/her head will be a display showing name, university and phone number. This display would allow a direct phone call, adding him/her as a friend and not only. They will walk and wander through the 3D space of the university. They can see the names and numbers of the rooms they come across, the restrooms and so on. They can choose to search for locations or people only by introducing data in the search bar. As a whole, the application will bring the real life on an online platform.

There will be some main body parts that should play the most important roles : messaging, maps, schedules and the search bar. They will be available both in Romanian and English.

- *Messaging*: this will work through the default messaging application that is already in the phone or through the messages tile in the application. The user can send a message to other user or users, message that can be displayed as a push notification on the recipient's phone. The conversations can take place with the possibility of saving the conversation, of seeing the time and date of the sent, received or seen message.

In addition, the application will synchronize with the user's e-mail address and can send e-mail messages, under his demand, even through the existing e-mailing app, although it would be easier if users were to send messages only through this application connected to the internet.

- *The map*: the way this map works will bear a resemblance to the Google's Maps. But, instead of streets, we will have aisles. Buildings will be replaced by amphitheatres and study rooms. The map could also calculate the best routing to reach the point B from a given point A. The routes can be saved to favorites. There will be an option to share your current location through this application or an external application. To access the map while offline, the user can download the map, which will contain the study rooms and the schedule which was updated when downloaded. Afterwards, at every update, the application will ask for permission to download its newer version and will be downloaded through wi-fi by default. The user can change this setting in the settings menu. If the user does not want to be seen on the map, he will switch off the location and all of the data displayed will be the one that was updated the last time the device was connected to the internet.
- *The Schedule*: the schedule will be available as a table, but not only. Choosing the university and the specialization you will see the updated schedule. While the user moves in space, moving forward towards the rooms, the display bubble will show him the current study class, the next class and the group that should attend it. It would be useful if there exists a way to download the schedule with the possibility of adding notes on the subjects (such as exam dates or projects). Through this section an event calendar can be created, where all of the optional subjects and workshops will be centralized. Professors will update the holiday days, the exam days and the days when students should be more prepared for a test than usual.

Along with the subjects' list, we can find the professors' list and their subjects. Additionally, their phone numbers will be displayed.

- *The Search Bar* : the search bar will be one of the most accessed areas on the interface. If the student searches for a professor's name or a room number, the application will always return the name or number as a first result, and then the results which contain the words that were introduced in the search bar. Professors can upload files on the calendar notes and every user can make use of these files, personalizing them.

To add more, there will exist a filter search. We can search for people depending on their university, number of certain classes per week, sex, age, nationality and so on.

The search bar can be used to search for a word or a character string through the conversations.

- *The user's profile page*: through this profile, the users could communicate because it shows important pieces of information. Professors could rate students and could comment on their profiles. The students can select which of the comments they would like to be posted on their page.

A "Favorites" button will be always available if the user wants to add something to his/her favorites, be it a route, a room or a person. That would allow him/her to access favorite routes/users even when they are offline, without an internet connection.

When the user is walking on the aisle, the application would display an extra red border if the chosen route is an emergency exit. It always displays red borders on the routes that lead to the emergency exit so that, by seeing it regularly, users would become aware of the ways they can rescue themselves in case of emergency.

The emergency button will be always available, but a security measure will be taken so as to not press the button if there is no emergency. For example, if the button is pressed a single time, nothing happens. If the button is pressed twice, at a two seconds distance, the emergency call will be activated.

3. DISCUSSION

This application can become, in a short while, the most used by students application when they are in the university, along with the socializing application. It allows them to make something both entertaining and useful – it uses their phone numbers, it gets students in contact with other students or their professors, it calculates optimal routes and it can raise the awareness level of emergency exists in case of fire or other dangers.

Especially when the university year starts, the application should be promoted because, through the application, each and every university will be promoted. The first months of university will be filled with people using this application to find out where they are in the building. If they should reach a place in a couple of seconds or minutes and there is no person to offer them information around them, the application will be more than useful to them. They will get in touch with the professors, with whom they will talk later on the application's chat.

Even after a couple of months of use, the application will still be useful. Its usage values will, most probably, be measured by a Gaussian function : the peak, with the highest usage (aside from the start of the year), will be when the students are to sit exams and have to have access to the calendar, the exam dates and the files uploaded by the professors. Another semester comes along, but, at its start, the level of usage will sharply decrease (because students got used to the surroundings). This will not be a problem, since the application is used as a bridge linking the students to their professors and letting them talk freely through the platform.

4. CONCLUSION

The application, in its simplicity, but also complexity, has, at the basis of it, a simple concept: shortened estimated time of arrival and communication between students in an easier way. If this application is to be implemented when the university year starts, even if it requires amplex, there will come feedback. The more opinions (be them good or bad) on the potential improvements, the faster characteristics are to be improved.

The application will be necessary at one moment at a large scale. Chances are that everything will be framed in such an application to give access to anyone who wants to get information on a building, no matter what nationality, sex, level of education and so on.

5. ACKNOWLEDGEMENTS

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