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RESEARCH ARTICLE

IMPACTS OF TECHNOLOGY IN MANUAL PROCESSES IN THE MIDST OF ORGANIZATIONAL SECURITY

Daniel Ferreira De Menezes, Eduardo Da Silva Felix, Jaqueline Silva De Souza Pinheiro and Zaida Maria Marques Tavares

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Abstract

The article aims to study a military organization and its management of vehicle and pedestrian traffic in the old format, both collection and processing and storage of this data, and propose a solution that facilitates such processes through a mobile application through the android operating system and the use of technologies belonging to smartphones, such as cameras, QRcode for a complete and enjoyable experience for both users and people responsible for the organizational management of the site. Usability tests were performed in the field where the user was allowed to have access to the application in full operation to generate traffic data during its use. Finally, it is concluded that the application provided better management, safety, comfort and better data processing.

Introduction:-

Technology is gradually advancing, processes carried out in manual ways are increasingly proving to be slower and ineffective. According to Patrícia da Silva Assis (2022) In the midst of the era of technology, and having its loss of effectiveness, technology comes day after day bringing solutions to increase the speed and accuracy of these tasks and always seeking the improvement of the data process, and when they target areas such as safety and convenience both for users who will handle operations, people who will enjoy the automation of the existing manual process.

When part of a military organization, several factors were observed that could be improved in the procedures for entry and exit of people on site, a fact that is linked to the security sector. It is noteworthy that because it is a military organization the rules of procedure of the establishment are very safe.

Currently access to the site is vulnerable, because the entrance is controlled by a military, who uses a manually filled spreadsheet to annotate people's data on arrival at the site. This procedure is causing some disruption for the military when entering and leaving its work environment, such as: pedestrian and vehicle queues, which provides slowness caused by detailed credential checks and due to the number of people accessing the unit, causing congestion at the access gates.

The way to store the records of the guards was through printed control forms, filled out by the sentinels that contained 24 hours of data filled in on multiple pages sorted by date and time. At the end they were stored in an archive along with other records from several previous dates. When occurrences that needed to be cleared, the search for the required information required availability of time checking the fields one by one until it was found by

Corresponding Author:- Daniel Ferreira De Menezes

the subject. Problems that sometimes occurred in the calculations of the data were: erasures, illegible letters resulting from various handwriting, erroneous data and even the loss of the document itself, because it is physical records.

Finally, the goal of this project is the development of a mobile application that will provide improvements in current procedures by automating manual processes such as validations, registrations and queries, in order to increase the performance of the means of security and control of input and output. Balancing the safety required by the organization and the comfort of employees. Adding characteristics that previously could not be used simultaneously such as: safety, agility, efficiency and reliability.

In order to counter this problem and increase the comfort of leaving the traffic of people more fluid, the checks became faster and faster, but even when they paid to the level of accuracy in recording the required data, with the reduction of the release time resulted directly in the reduction of the predicted safety leading to another problem that are the errors of registration and access control resulting from a lower rigor employed by the during the service causing the entry of people not foreseen as: employees with vehicular credentials out of validity, without registration, vehicles with expired licensing, without hierarchical degree necessary for entry with vehicles.

Teorico Reference

This chapter will address the theories that underpin the development of this article. First will be conceptualized mobile application, then organizational security, java, Mysql, QRcode, Android Platform, Excel.

Mobile App

Mobile computing is a popular term and can be defined as access to information anywhere, anytime and with any equipment. However, we also have pervasive computing, which is access to information distributed in the environment in an imperceptible and perceptible way to the user. Explaining: it is something invisible to the naked eye, but it is known that computing is present in the place.

The fusion of these two technologies results in ubiquitous computing, which is the integration of mobility with the distributed, imperceptible, intelligent and highly integrated presence of computers and their applications. In this post, we will talk about ubiquitous computing, but, as we have said, the term that is already popularized and very soon will be technically unified will be Mobile Computing.

The advancement of cloud storage technology, hardware cost reduction, the expansion of mobile telephony (wireless WAN) and Wi-Fi (wireless LAN) networks has allowed virtually all business areas and services to use mobile systems and their most diverse devices: tablet, smartphones, POS, contactless, IoT (Internet of Things) and Wearables. These apps and devices are improving every day and we'll now see where this technology is already being used logical minds portal (2017).

Organizational Security

Corporate security identifies and effectively mitigates everything that poses a threat to the integrity of the organization, also acting in a preventive manner. In its broader context, it also refers to the practice of protecting customers, employees, physical properties, data, and information.

It is important to emphasize that corporate security should not be seen as a standalone function, but rather recognized as having the ability to work and improve other areas of the business, such as Corporate Governance Setting Consulting (2019).

Java

And a platform-independent language that could be used in the creation of software built into various home electronic devices, such as toasters, microwave ovens, and remote controls. As expected, many types of CPUs are used as controllers.

Java was conceived by James Gosling, Patrick Naughton, Chris Warth, Ed Frank and Mike Sheridan at Sun Microsystems in 1991. At first, the language was called "Oak", but was renamed "Java" in 1995. Surprisingly.

The original motivation for the creation of Java was not the Internet (Herbert Schildt,2015).

MYSQL
SQL means "Structured Query Language", or "Structured Query Language", in Portuguese. Briefly, it is a programming language for dealing with relational (table-based) databases. It was created so that multiple developers could access and modify a company's data simultaneously, in an uncomplicated and unified way. SQL programming can be used to analyze or perform tasks in tables, mainly through the following commands: insert, search, update, and delete ('delete'). However, this does not mean that SQL cannot do more advanced things, such as writing queries (query commands) with multiple information. (tecmundo,2019)

And it has as main advantage its open source and its free use to be used without the need for signatures or being stuck to a limited time of use (DEMO).

QR Code
They're everywhere, from websites to ads. They look a bit like barcodes, but instead of vertical stripes, they are formed by square-shaped patterns. With the popularization of its use by companies, it is increasingly easy to recognize them and many smartphones already come with integrated QR reader applications (Kaspersky 2017).

Android Platform
Android is a mobile software platform developed by Google in a consortium called the Open Handset Alliance, composed of dozens of companies that regulate and implement the requirements needed to meet each version of the platform. This allows the use of the Android operating system in several brands of devices, with the most varied configurations, provided that they are adherent to the requirements of an Android version (Ricardo, devmedia 2016).

Excel
It is a software that allows you to perform accounting and financial tasks thanks to its applications to create and work with spreadsheets. The use of the application is given by the fact of its practicality of use, because it can be accessed from any machine and keep your data saved.

Google Forms
Google Forms is a free service for creating online forms. In it, the user can produce multiple choice surveys, ask discursive questions, request numerical scale evaluations, among other options. The tool is ideal for those who need to request feedback on something, organize registrations for events, invitations or ask for evaluations.

In the following tutorial, learn how to use Google Forms to create surveys and track responses. It is noteworthy that the operation of the service is totally online, that is, the tool is compatible with any browser and operating system. Data is saved to your Google account. (HelitoBijora, TechTudo 2018).

Methodology:-
Method will be based on quantitative research through field test where the implementation of the new tool will be carried out, to collect data from the improvements obtained during its operation, search through google forms forms, because it is easy to handle and share it to the target audience of the search, after obtaining the satisfaction results sent to users, results will be obtained regarding the efficiency of the app in the view of users in the terms of: comfort, agility, estimates of the reduction of problems generated by excess cars on site and a poorly optimized management.

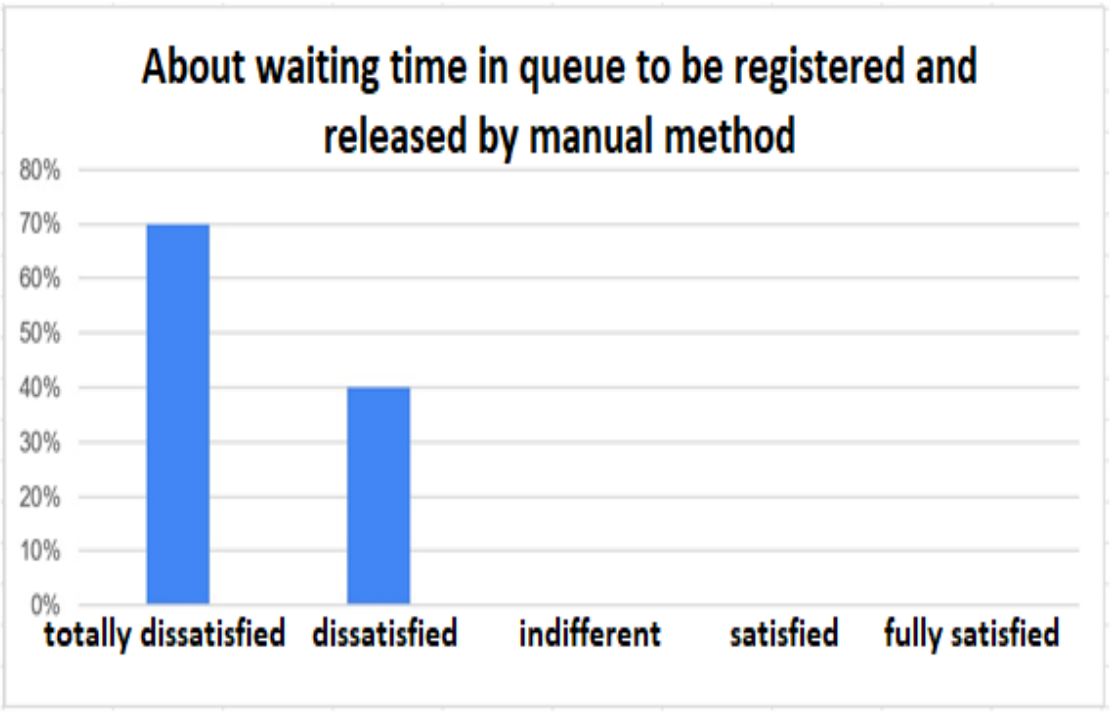
Data collection will undergo analysis to generate numbers to be presented both for site management and a way to have consistent numbers to support the effects applied in its field operation.

The satisfaction survey will focus on users who routinely go through the process, because they will know how to accurately report the points specified in the questionnaire to which they will be submitted.

Findings
Topic intended for sampling the results obtained through a graphical analysis of reports obtained from periods comprising the manual method and application implemented and a satisfaction survey filled by employees of the organization. In order to compare the performance of the methods presented by the data arranged below.

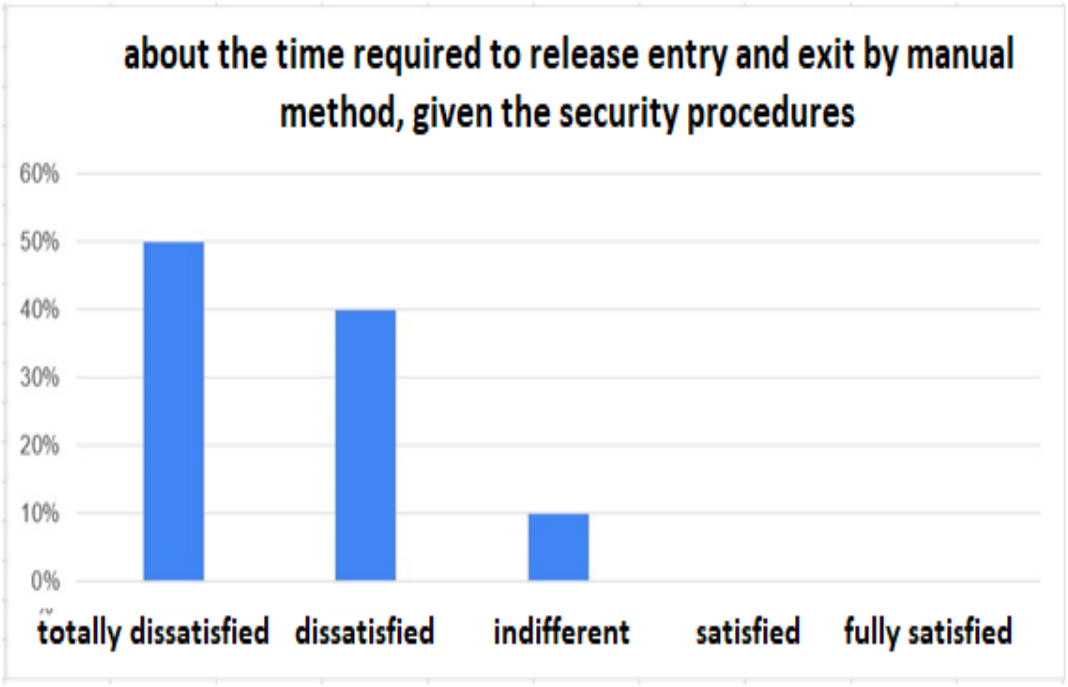
Before:

Graph 1:- Satisfaction data.



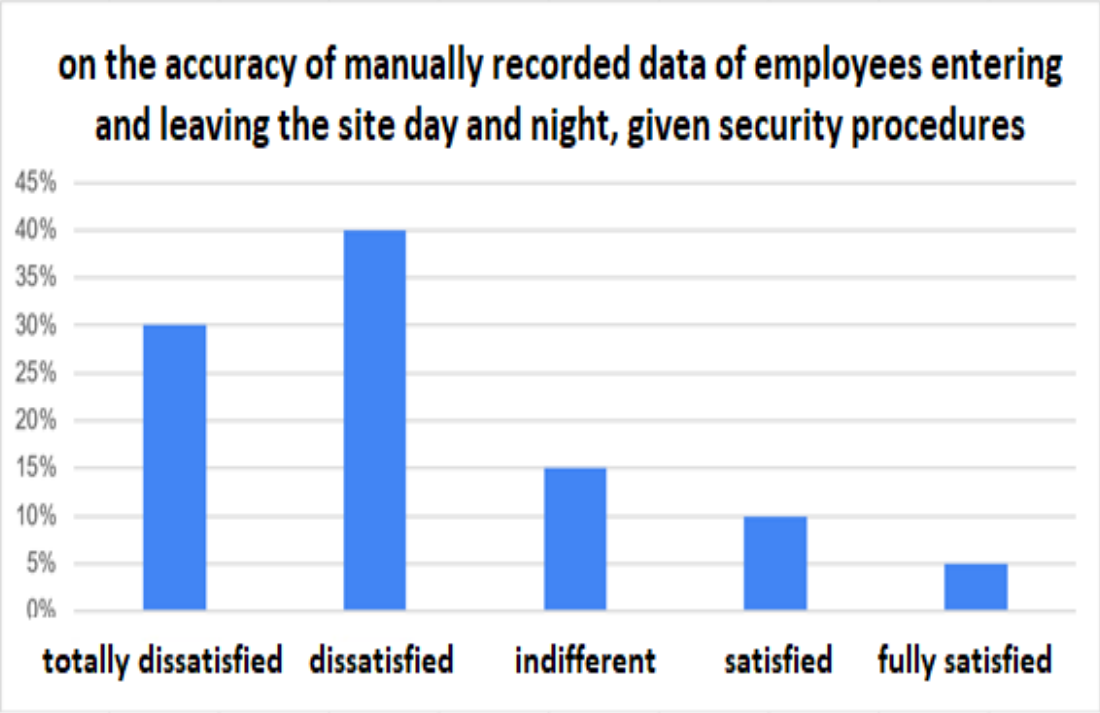
Source: Authors, 2022.

Graph 2:- Security procedureat the entrance and exit.



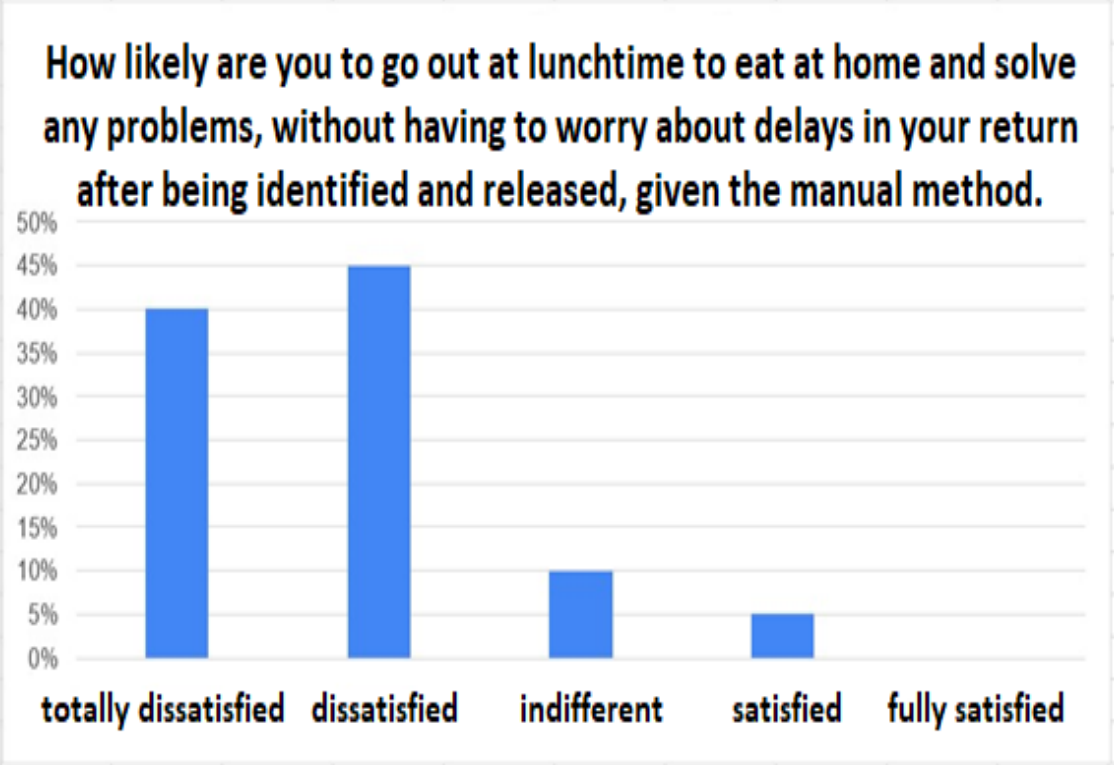
Source: Authors, 2022

Graph 3:- Accuracy of recorded data.



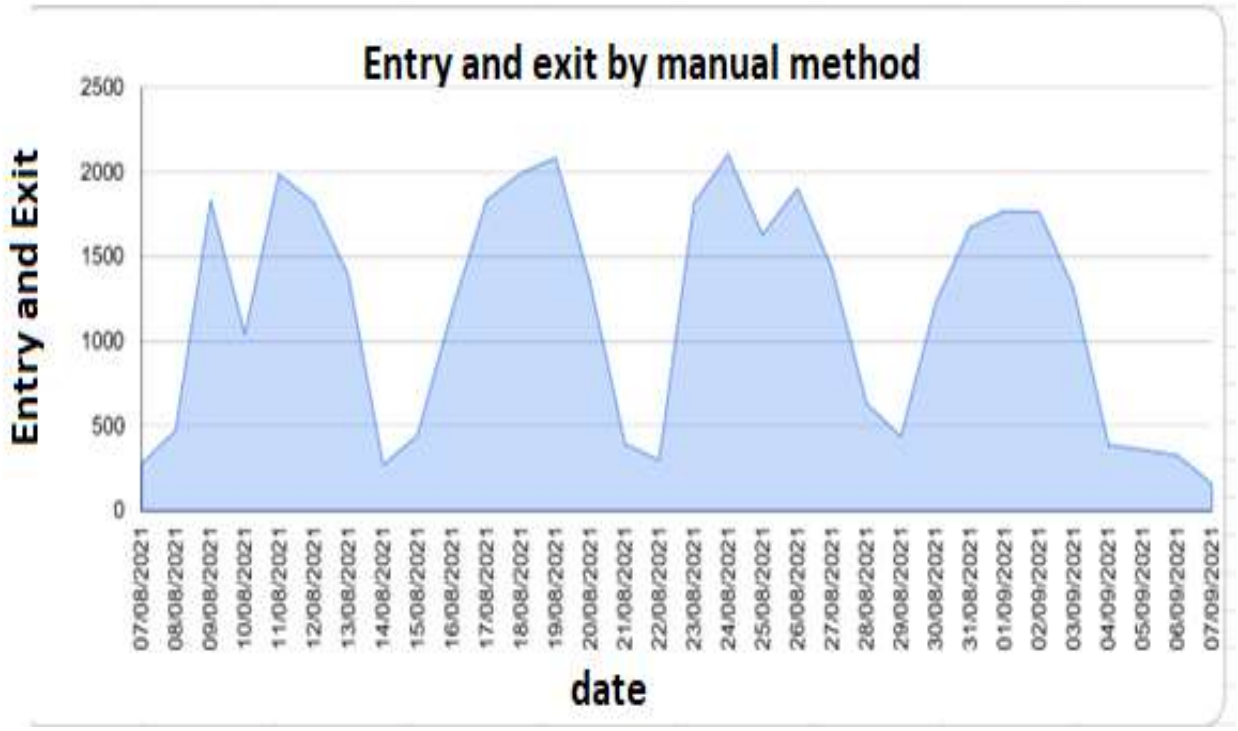
Source: Authors, 2022.

Graph 4:- Probability of times.



Source: Authors, 2022.

Graph 5:- input and output control.

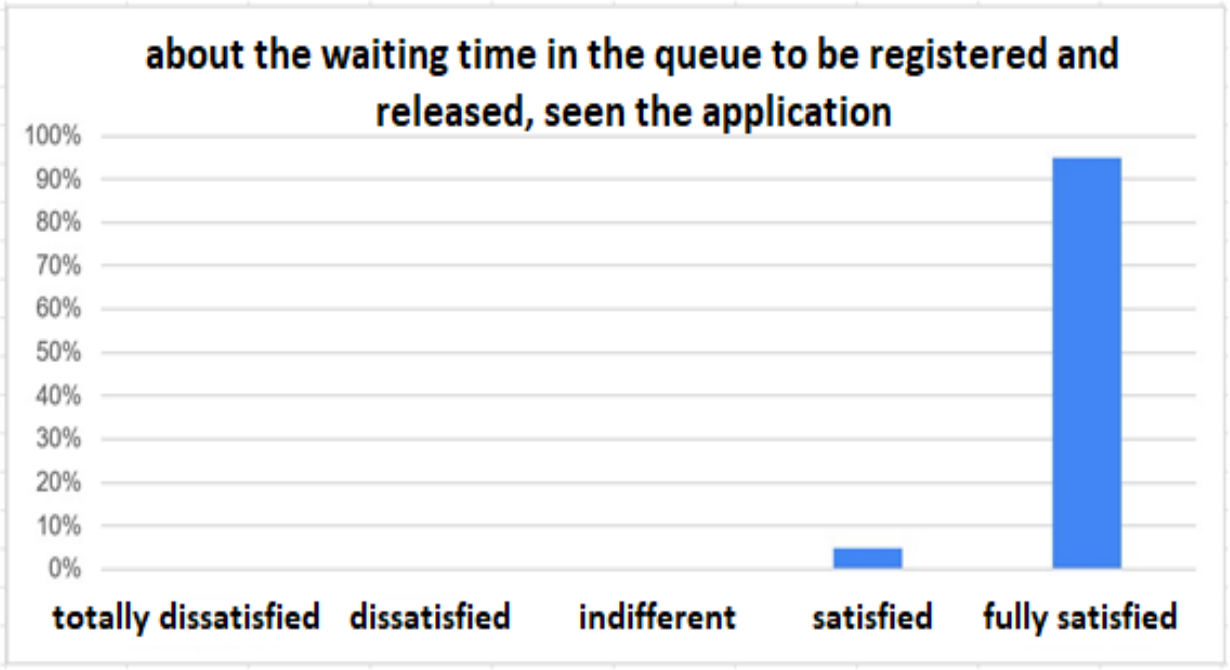


Source: Authors, 2022.

The graph above shows data that report the number of inputs and outputs in the unit during the period from 07/08/2021 to 07/09/2021, collected by counting daily records documented on paper.

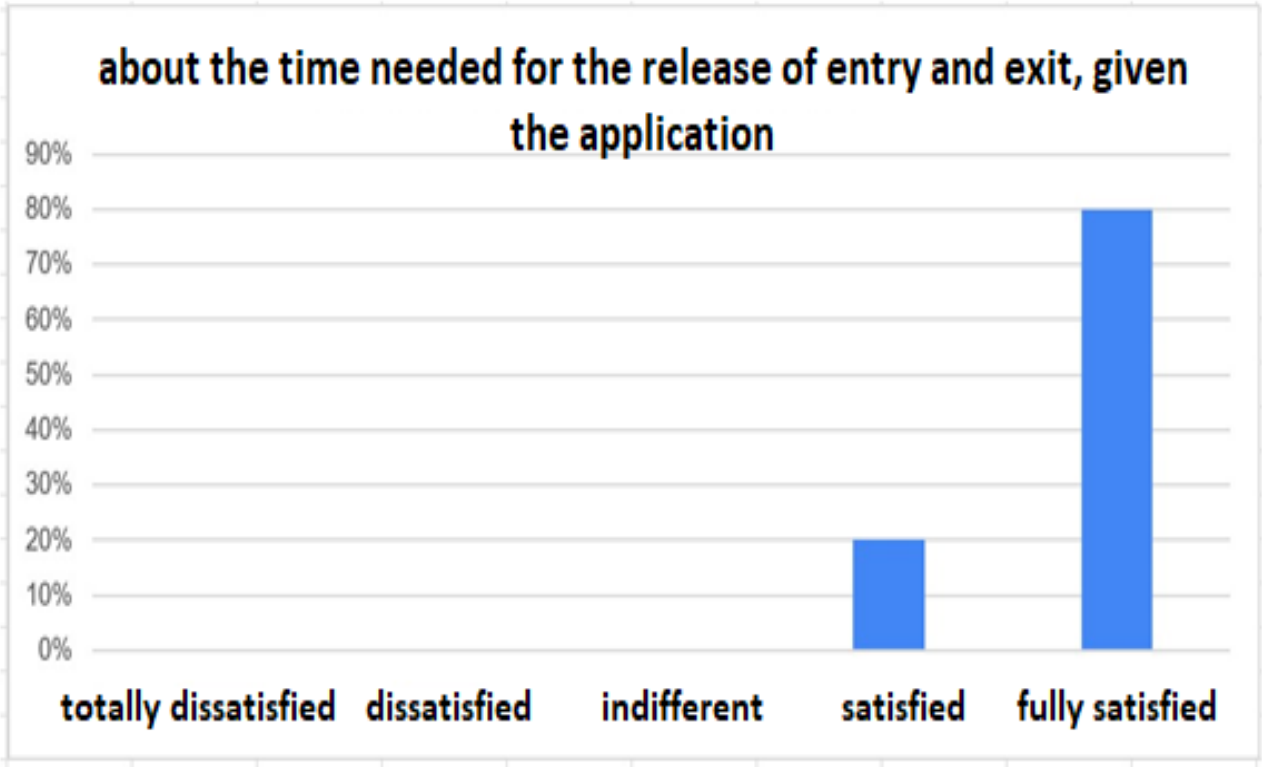
After:

Graph 6:- Queue wait time.



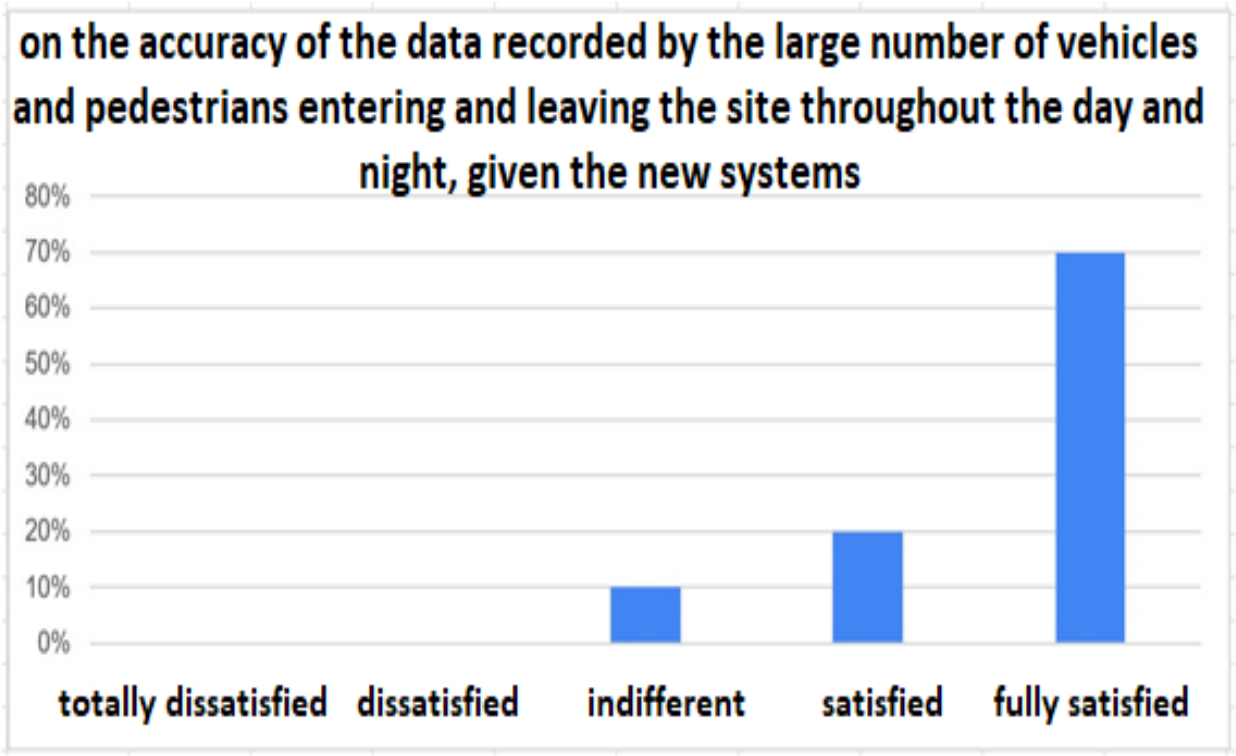
Source: Authors, 2022.

Graph 7:- Input and output release time.



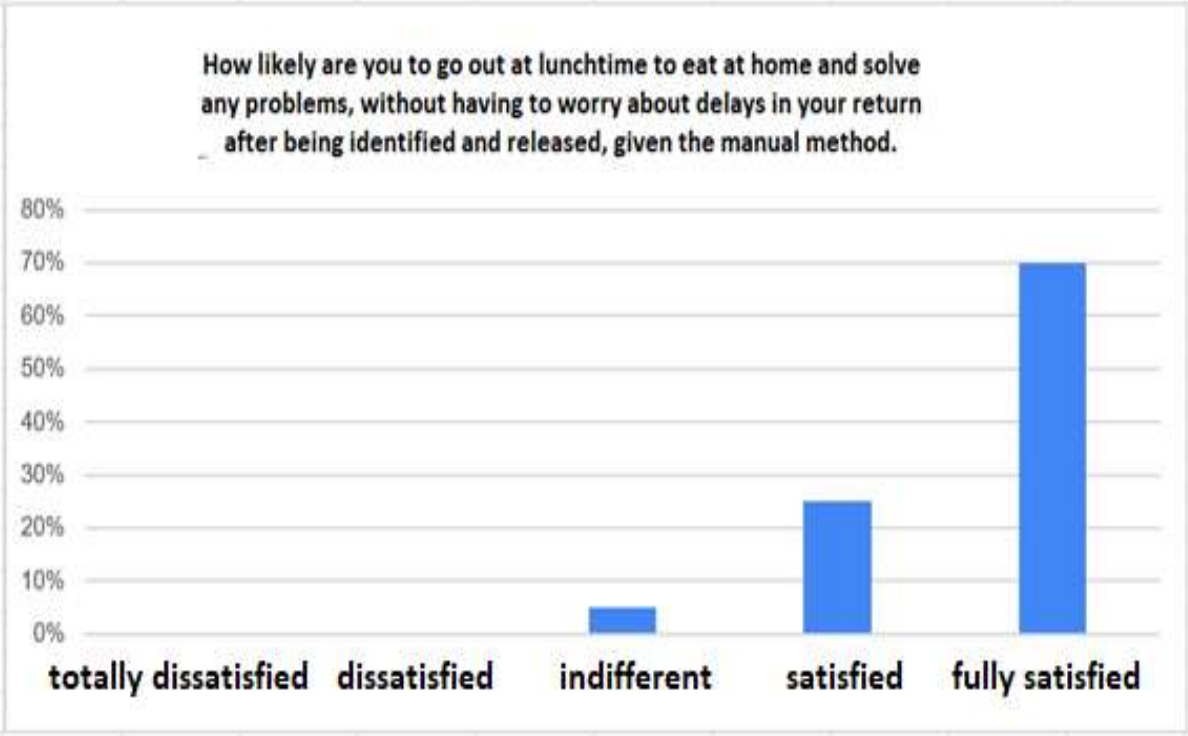
Source: Authors, 2022.

Graph 8 - vehicle entry and exit record



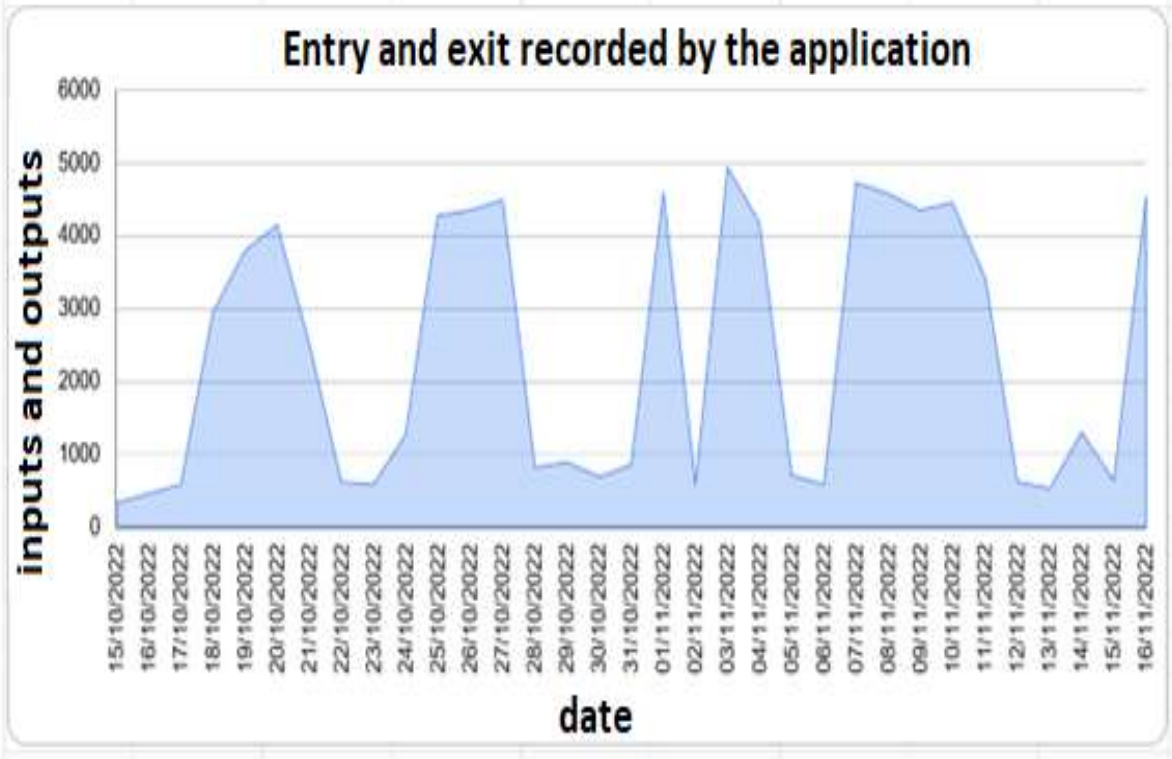
Source: Authors, 2022.

Graph 9:- Probability of times.



Source: Authors, 2022.

Graph 10:- Input and output control.



Source: Authors, 2022.

Graph 10 demonstrates quantitative inputs and outputs in the unit during the period 10/15/2022 to 11/16/2022, collected through an application-generated report.

Discussion:-

The studies together with the data collected in tests obtained a higher degree of effectiveness in points of fluidity and safety in their implementation in the scope of work with an improvement in these points, when talking about the degree of user satisfaction the numbers are positive, because even with the new method presented, no reluctance was found to use this new method, the information collected show that users began to feel more confident with a new system in agility, without possible unforeseen events such as the risk of delays due to unwanted queues and greater motivation to leave during lunch or in order to solve some problem, since they did not go through uncomfortable situations.

The improvements in security and effectiveness were presented in the way of obtaining data during the checks and records in more precise ways, with the reduction of data collected wrong or even the absence of data collected, the results obtained through QR codes demonstrated a high reliability and speed in the verificationof credentials. When devices with the application installed sync information with the database, they download information for verification of credentials such as photo, name, sector of work and vehicle information previously registered in the database along with information such as authorization to access the organization and can be set by days of the week, times and even small periods for visitors.

Confinal Siderações

After analyzing the results obtained from the new tool implemented in the scope studied, a noticeable improvement can be obtained in the optimization of entry and exit control of vehicles and pedestrians, through the application created for mobile devices with the use of current technologies available such as capturing images with cameras for QR code reading for a data recording and validation of input more quickly and easily. With the possibility of using these technologies proved to improve day-to-day functions, one was able to notice that improvements can still be obtained in speeding up and improving such functions, bearing in mind that the use of QR code to replace those used until then barcodes.

The impact of the application in the field was remarkable, as the improvement ranges from the time to release in front of the gates that previously lasted 2 to 3 min for credential verification, annual validation of the vehicle identifier sticker and plate conference. As for the reduction of queues, both cars that depending on the schedule could take a considerable time for delays, as pedestrians and visitors who in a matter of safety is due to the ease of obtaining and without problems to check important points such as veracity of the data and possible documentary problems, since the information appears for conference when read by the application and is shown the level of authorization of access to the unit and the days and times allowed..

The query time in the records decreased considerably, since it was necessary to search for an entry and field output for the archived documents, which took from 20 min to 1H of search for records, depending on the amount of data requested and can arrive up to days on search hours, in order to find records of a single vehicle. Now with the data stored digitally, any information can be found in a matter of seconds with a simple search by name, plate, date and time. You can find any required data accurately and quickly, in addition to the possibility of printing a record sheet generated by the application database with the information requested for any purposes.

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