User Performance Tracking System

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Abstract—In the world large number of people work with computers while very few are not. When we consider about the organizations, each and every employee can do anything with their computers. There is no one to monitor the activities of the computer users. So the probability of illegal activities and the misuse of the access privileges are increased. Then the performance of the employees are decreased. Here we discuss about a main reason for the organizations to be lost, how we recover from that and present a new application to mitigate this risk by monitoring the computer users. We are getting feedbacks from the users to be legal as we are tracking the computers and we are giving feedbacks to the users individually about their performance.

Keywords— **Productivity, Performance, Service application, Web application**

I. INTRODUCTION

There are companies like multi-national, government, semi government and private. Each and every organization needs to present their achievements, targets, budget, such kind of things at the end of the year but, most of them are lost. When we think about "Why this happens?", there can be many reasons. If somewhere the company is lost. Definitely there can be many unproductive tasks done by the computer users. So, if we can find the productivity and if we can increase the productive time, we can bring the company up to a higher level.

"How we can say the things which are performed by the user is productive or non-productive?" every employee is assigned to do a specific task. The applications used by the users are different. An important application to a specific person may not have any importance when considering to his/ her task. Use of that important application affects to that specific person for his/ her productivity while the use of that application affects to another person for his/ her non-productivity.

Every user in their working hours, has some limited time period to be free. The problem is most of employees use the computer for their personal purposes within working hours. Such as they used to watch youtube videos, play games, use facebook, handle personal documentation, and etc. So, their non-productive time is increased, and it causes the loss of the company. So, we need to increase the productive time.

By developing this application our main target is to track the computer users' activities for the best productivity of the organization. The system needs to capture users' screens, idle time, work time and calculate those. Then it categorizes all the things as productive or non-productive. So, the final outcome is about the user productivity and it is presented with charts and generate a report. Whenever we want, it can generate automated alerts also. As an example, if we want to get an alert when the user is accessing a specific web site we can develop the application to generate an alarm.

With certain access privileges, each and every user including the supervisors can access the web application which is related with this service application. So, the server-side security is very important to keep the records secure. Searching of one person can not be opened for others. At the same time the data need to be accurate as it monitors the performance and decides the productivity. With all of these features, the operating system needs to be Windows.

However, there is a need of the development of laws to legalize the computer monitoring but, in the meantime, employers should consider about the employee feedback to this type of performance analysis.

II. LITERATURE REVIEW

In this user performance tracking system, we can track the idle time Vs working time and gives the productivity according to the defined productivity app. Also, we can monitor the brain usage of the user whether it is left side or right side. We are going to implement an automated alerting system for the supervisors. As an example, once an employee search for a job which is related to his or her career supervisor is waken up with an alarm. In such kind of environment, it affects to the productivity of the company. Because this employee may have some problems with this working environment and therefore he/ she may search for other jobs related to his/her career.

According to the research "A study of Employee productivity management system adopted by the Hotel Industry with special reference to Hyderabad & Bangalore cities", they have proposed a productivity management

system and it takes labor as a parameter of measurement of productivity.

According to the author Somaya Al-ma'adeed, Project and Time Tracking System (PTTS) is a web application that provides an automated and centralized method of tracking and monitoring work time for active projects by enabling supervisors to track employees work time, efforts spent while working on various projects performing tasks assigned to them. As an advantage of the system, they mentioned that each employee can log into his account to do various tasks. Employees, Supervisors and Project managers have different privileges according to their roles.

The research "Employee Tracking System", based on the management of employee information. There are four types of modules: account and administration, human resource information, client management, project management. To reduce the complexity of the employee management they have defined this solution.

The author Haller proposed the main ingredients of effective privacy policies: (a) notice, firms should provide stakeholders with a prominent notice vis-à-vis its information practices; (b) consumer choice, firms should give stakeholders the freedom to choose whether it may divulge personal data about them to unaffiliated third parties; (c) access and correction, firms should accept their stakeholders to make some corrections if necessary about personal data that they have gathered about them; (d) security, firms should espouse practical securitymeasures to protect the privacy of personal information, and these measures may comprise administrative, physical, and technical security; and (e) enforcement, firms should develop a system that can enforce its privacy policy and ensure compliance with their own and external standards. Moreover, maintaining a balance between employers' propensity to productivity and compliance with legislative procedures, corporations may be most successful in practicing the following: creating unambiguous privacy boundaries, developing privacy formula and principles, and defending personal data.

According to the research "Improving employee productivity through work engagement: Evidence from higher education sector", it followed a quantitative approach for collecting the relevant data from respondents. In particular, an online survey was administered to 870 administrative and academic staff at public universities in Northern Malaysia. To test the hypothesis of this study, the regression table which was generated from structural model was used.

"Employee Monitoring and Management System Using GPS and Android" paper reviews about five requirements which proposed by the system. For Easy to implement and add no. of functions, ability to manage many employees efficiently, tracking of employee easily for checking either

who is present approved area or unapproved area. Very

secured and Low cost also. To satisfy the above all requirements, the proposed employee monitoring system adopts 3G communication network function between Android mobile terminals, and collects user's information using Global positioning system (GPS).

The author Nagashayana R is saying that the use of GPS for tracking purposes outdated now and he proposed to develop the application using Android SDK and eclipse and to develop the server-side use PHP and tracking in plotted on google maps using JavaScript.

"THE INSTRUMENT USED IN MEASURING EMPLOYEE PRODUCTIVITY BASED ON SOCIAL MEDIA USAGE: A REVIEW" review paper aimed to conduct comparison analysis in the methodology used and the instrument adopted or developed by researcher in measuring the social media usage and employee productivity. Actually, it has also become one of the major factors that contribute to the disruption of work productivity.

A research indicates that clear patters are taking shape in the spheres of production management and work organization. The general principles of flexible production and workers' self-regulation can now be discerned clearly. In contrast, it is still unclear which institutional framework could usefully support these developments in the sphere of production.

Another study by the author Ciocchetti classified each of the top monitoring practices into one of the following types: (a) best practices (e.g., monitoring that presents the greatest protection and minimizes invasion of employee privacy), (b) risky practices (e.g., monitoring that offers rather low protection and minimally attacks employee privacy), (c) borderline practices (e.g., monitoring that provides high protection, yet is also highly insidious), and (d) poor practices (e.g., monitoring that provides low protection and is extremely invasive). This classification system is likely to assist lawmakers to balance both employer and employee interests when legalizing workplace technology.

Another research reviews that the computer technology today supports many performance management systems, and employers frequently accumulate records of employee performance measures, punitive actions, and work rule violations in electronic files. They also saying that need of the development of laws to legalize computer monitoring, but in the meantime, employers should consider employee feedback to this type of performance analysis.

III. METHODOLOGY

There are mainly web application, database, and a service application all together. Users can interact with the web application whenever they need. We interconnect the both service application and web application via data statistics.

A. Input

Every activity done by the user such as, user accessed applications, idle time, every searched criteria in search engines.

B. Process

Categorizing applications as productive and non-productive according the user wise, calculating the total idle time, measuring productive and non-productive percentages functions are under the processing part. Also, it categorizes the URLs also as the above mentioned.

C. Output

As the output it produces user productivity according to the given data and time period, detailed report of non-productivity; if needs can get a report of productivity also, peak hours, off-peak hours, measurement of workload of individuals. Main thing is it visualizes data with charts. So, the final output is very understandable, and it is easy to make decisions.
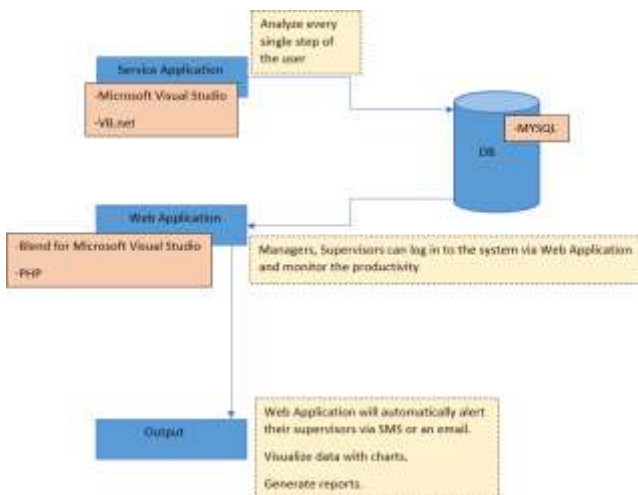

Figure 1. Block diagram of the system

The developed service application will run on users' PC and this service application will push every single step of users' workstation to the DB, even the mouse movements. Managers, supervisors even the employees can log in to the system via web dashboard and monitor the productivity in various scenarios such as; peak idle time, most searching parameters and if the employee is a job seeker, the system can report the supervisor by an automated alert system. With the help of web application, the system alerts the relevant supervisors via SMS or an Email whenever the employees' idle time exceeds and if the user is searching for new vacancies related to their profile. For an idea about the system, please refer the Fig 1.

When we consider about the technology and the resource requirements,

D. Technology
- VB.Net.
- PHP.
- HTML.
- JQuery.
- JavaScript.
- AJAX.

E. Resource Requirements.
- Microsoft Visual Studio.
- Blend for Microsoft Visual Studio.
- MYSQL.

IV. RESULTS AND DISCUSSION

By implementing this system, it will be very helpful for the organizations for a better productivity. So, the employees can not exceed their limits of freedom such as using applications, URLs which causes for non-productivity, idle time and the things which we mentioned earlier.

With the help of this simple system; service application and the web application including the database we can bring the organization to the success.

V. CONCLUSION

This is a system which can track the performance of the computer users, especially in companies to check the productivity. Also, we can use this for schools and universities to track the students' activities. Lecturers can check the things what they are doing with their computers.

As a future work decided to track the users' office telephone (Analog extension phone or mobile phone) if they are busy with calls and add that time for the productivity measurement function.

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