Proceedings of the Second International conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC 2018)
IEEE Xplore Part Number:CFP18OZV-ART; ISBN:978-1-5386-1442-6

E-Mentoring System Application

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Abstract: Mentoring is one of the most dynamic and traditional pedagogical tool, holding a great promise in the way of learning in educational technology. The emphasis should be on motivation and improvement of the students. As a replacement for face-to-face interactions, Electronic-Mentoring System (E-Mentoring System) uses asynchronous, electronic medium to establish and sustain the liaison among the mentors and the proteges in an organization. E-Mentoring system is a client - server based model which acts as an interface between mentors and mentees. E-Mentoring system is an Android and Desktop based application for undergraduate initiatives which involves assigning of 18 to 20 students called mentees to each faculty called mentors. The focus in mentoring program is on fostering and developing a positive relationship between mentors and students.

Keywords: E-Mentoring, Mentoring, Online, System, Android, Desktop, Application, Mentor, Mentee, Admin, Students, Guidance, Problems, Feedback, Performance

I. INTRODUCTION

Mentoring is not new-fangled. On the contrary, the term "mentor" comes from the Greek Mythology. It was Homer's classic tale "The Odyssey" that first gave augment to the concept of mentor (Homer).The story sees its hero Ulysses heads off to wage war. However, before he does, he leaves his entire household and especially sole responsibility of his son Telemachus, in the hands of his most trusted friend mentor, so that mentor can provide guidance to his son [1].

Mentoring is a conventional method of transferring knowledge and skills from an recognized professional to a less experienced person in an organization [2]. In one of the eminent Universities in UK, junior students are mentored by the senior students in the Institution by means of mentoring them face to face and guiding them by interacting by using electronic application program. This Initiative was encouraged by the Organization and research on how this program can be initiated was encouraged by interacting with the faculties of the Organization who were part of curriculum. Presently, most organizations today have some form of a mentoring program and initiative. Traditional mentoring programs (such as face-to-face mentoring) typically involve one person (as mentor) and a set of 18 to 20 students (mentees). The mentor maintains some form of document for each mentee they are assigned. All the activities that a mentee does, are known to the mentor. The mentors specially call their mentees for meeting and collecting information about their progress and their curriculum activities. The document that are maintained these information, also includes the full details and their pasts about the mentees.

To encapsulate this concept, E-mentoring is an android and desktop based application which is essentially developed to improve the performance of the students by assisting mentors to understand mentees problems more efficiently and effortlessly. Electronic-Mentoring is a software application which is effectively designed to be used in educational sector for the purpose of mentoring. E-Mentoring system contain three users who are admin, mentors and students [2],[3],[4]. It is considered to be an appropriate choice for the facilitators or faculties of the Organization who are keen about mentoring usually look ahead for a latest form of mentoring in an existing program to discover trendy user friendly applications. Mentoring also helps learners develop important interpersonal skills [5],[6]. In order to achieve this, a rating system is also included using which the mentor can evaluate easily and sort the performance of each student and guide them effectively. This application connects more people compare to traditional face-to-face mentoring system [7].

II. PROBLEM STATEMENT

The main setback focused here is the process of mentoring between faculty and the proteges. This process has to be done successfully because it will influence the future of the student as well as the academic Institute, among which the foremost thing is betterment of student life. By effectual mentoring not only the failure rate in academics reduces but also it will help the student to develop on the whole as an individual.

III. METHODOLOGY

In this section, we will discuss how E-Mentoring system is developed. It makes use of two tier architecture that acts as an interface involving the mentor and the student. This system is built under java runtime environment using complete object oriented programming techniques to handle the real world challenges in the system.

We will create an E-Mentoring software application accessible by both the faculty and the students, which is effectively designed to be used in educational sector for the purpose of mentoring. This system contains three users who are admin, mentors and students. The below Fig. 1 depicts the framework of E-Mentoring system which explains the

complete process in the simplest way possible [2]. The user admin assigns certain students to the mentors who are either a professor or an assistant professor or a teaching faculty by designation who has the concern for the improvement of their students in a college or academy. It is effective, fast and time saving system of mentoring. It primarily focuses on improving the mentoring process between the faculty and student in the college scenario.

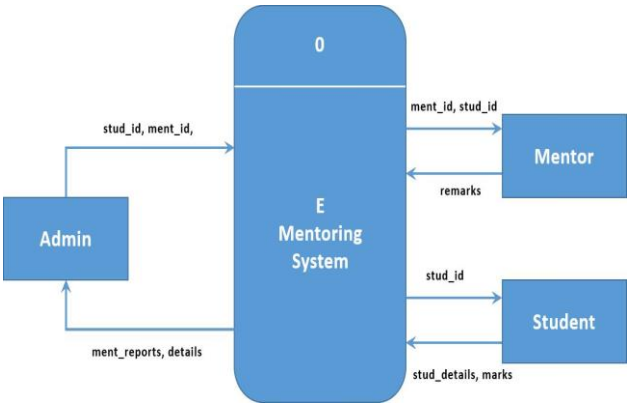

Fig. 1 E-Mentoring System Scenario

This system mainly enables the mentors to concentrate effectively on each and every student assigned to them. This system gives the details of the students like information of attendance, marks of the students to all the mentors involved in the system, which empower the mentors to give proper guidance and right solution to the problems of each student. This system gives the students a private access to the feedbacks of their mentors which endeavors them for their self-improvement.

They have to log-in by their respective usernames and passwords to have an access to the application. Each faculty or mentor should assign a set of 18 to 20 students or mentees and interact with them directly on either one-to-one or group conversation. The mentees can use the android mobile application to get connected with their respective mentor. The mentors can use either the desktop application or the android application to track or get connected to the mentees. Whenever any notices, circulars or any information that has to be informed to the students, it will be posted on the application, and the students will get the notification for that. All the information, activities & histories about the mentees, are always available on the app and visible to both the respective mentors and mentees.

The user mentor starts mentoring the students after login in the application using the information of attendance, marks, etc. of the assigned students. The user student can also initiate for any guidance or solution to problem faced by the student to their respective mentor. Mentors after logging in the system will view all the information of the students like their past history, marks, attendance etc. Mentors can also view two different ratings, provided by the system for each student as per their attendance and marks secured, out of 10. The details of attendance and marks secured by each student are entered to system periodically. Depending on the information available of each student, Mentor can give right feedback to the students, which can be used by the student to solve their problems as well as take correct decisions.

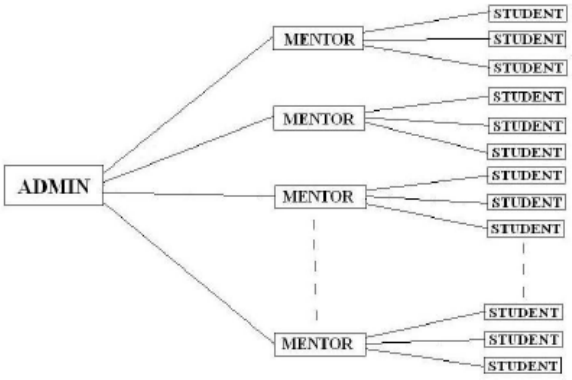

Fig. 2 Internal Architecture of the System

- *Admin module*

The admin module has the super power or we can call this as super user of the system as shown in the above Internal architecture in fig. 2. The administrator has the only power to add a student or a student's group, the addition of the faculty is also can only be done by the admin. The assigning process of the students to the faculties can also be done by the admin on, and it is a complex process as shown in fig. 3. In the above use case diagram, the main actor is the admin only but the other actors are the student and the faculty. The messaging system for the admin can support only the faculties, no students can message to the admin, and the message is secure.

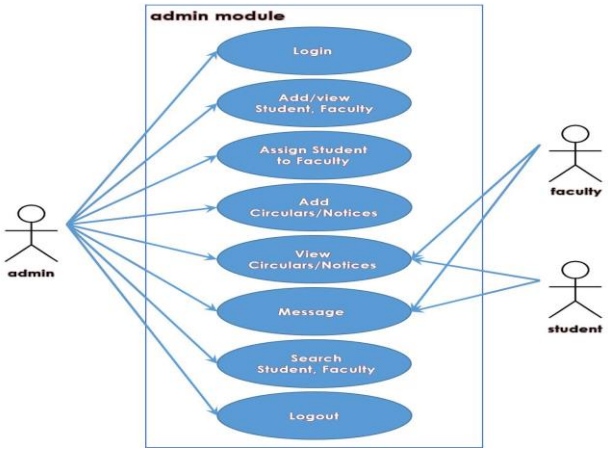

Fig. 3 Use Case Diagram – admin

- *Mentor module*

The mentor module has the capabilities that they can track the student's attendance, marks, progress reports, VTU marks, IA marks, etc. The purpose of chatting with the admin is to notify the admin about any circulars, students' progress, or to give any answer to the queries what the admin has asked about. Apart from the admin, the mentors can also post the circulars for all the students and the notifications for their allotted mentees as shown in fig. 4 below. The notifications service is only for the students who are assigned by the admin to their individual mentees.

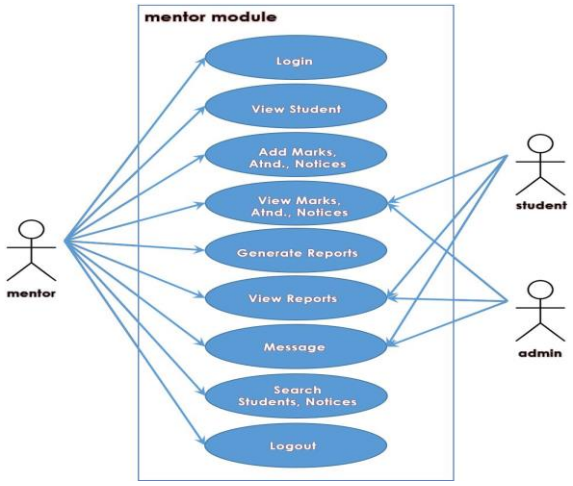

Fig. 4 Use Case Diagram – mentor

- *Student module*

The student module has the capabilities only for viewing the details about their marks (such as VTU and IA), attendance, notices / circulars and their progress reports. The message / chatting facility for the students that is only with their mentors. The another feature that is enabled for the students to add or update their profile. There is also a one-time edit feature of the personal details of the students. The main actor in the student module is the student itself, and the other actors are the admin and their faculty / mentor of the student.

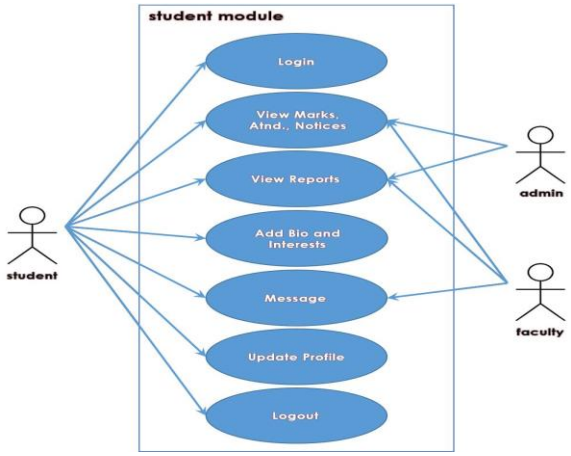

Fig. 5 Use Case Diagram – student

In implementation of this application, there are two versions of the system that are used to develop the E-mentoring system application. The first version is a web application, that are mainly used by the administrator and the faculties/mentors. The second version is an android application, which is mainly used by the students/mentees. These two versions can also be used by the administrator/faculties/students.

The below diagram represents the Entity-Relationship (E-R) diagram of E-Mentoring System which is useful in unfolding and designing the database used in implementing this application. This figure shows entities, relationships, attributes, cardinalities, keys, weak entities, weak relationships etc.

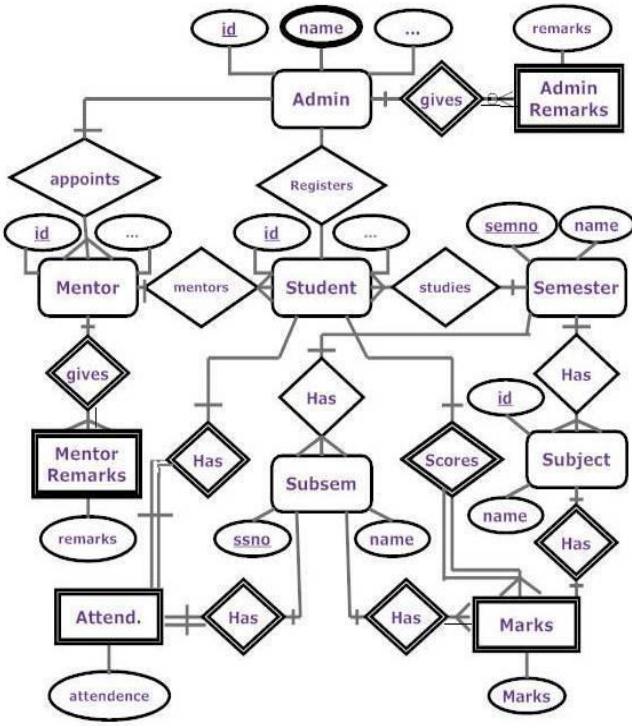

Fig. 3 Entity-Relationship Diagram

IV. BENEFITS OF E-MENTORING SYSTEM

The challenges with paper-based mentoring programs can seem ominous [9], but fortunately, there are a number of technology-related solutions to make the mentor/mentee program more effective and easier to manage [8],[9],[10]. Below are a few benefits that technology can offer when it comes to your mentoring program.

- *More Efficient Matching*

Using mentoring software to help run a program allows to have quicker and more proficient alike of several mentors and mentees based upon their skills and competencies. You can even allow people to find their own matches! For example, a mentee may be looking to develop in a particular area and see a potential mentor who is available and who is willing and able to provide developmental assistance. The mentee is able to either contact the prospective mentor via email/the software, or contact the program administrator for and introduction and/or approval. This not only allows the matching process to be expedited, but it also helps it be more targeted and personalized. Some systems even make smart recommendations to users based upon their skills and competencies.

- *Better use of Time*

When using mentoring software, time assurance can be recognized early when the mentor and mentee connect. They have the chance to resolve if they will be occupied for a shorter period of time or if a longer time-frame is favored. Scheduling future meetings is also easier, since most mentoring platform have built-in calendars and development tools. The program administrator can use the mentoring software to run information to see if the mentor and mentee have kept their commitments and met with one another as per their scheduled appointments. This gives a level of accountability and conscientiousness to the participants, which can potentially brace the engagement.

- *Unfettered Growth*

With technology-based solutions, it is much easier to balance a mentoring program. In fact, an complete organization can have access to mentors and mentees through the ease of technology. The administrative burden is considerably reduced when technology is used all the way through the mentoring process. For example, people can easily build a profile in a mentoring platform and include all of the decisive information an administrator would have previously had to collect and enter into a spreadsheet. Once the intense stimulating of hand-matching is removed from the equation, mentoring quickly becomes an opportunity that companies can offer to all of their employees, not just to the select few.

- *Tracking and Reporting*

Using mentoring software and technology allows a variety of types of tracking and reporting capabilities[12]. For example, we can track where a fussy mentee is, if he/she is not present, or which mentees are more active than others. We can also track such things as what the feelings are on efficiency of the relationship and progress of the mentees. You could even track and report on where you have a gap in mentors for a particular skill and/or competency.

V. LIMITATIONS IN IMPLEMENTING E-MENTORING SYSTEM

Each mentoring schedule hypothetically faces difficulties [8],[9],[10], besides performing E-mentoring is unlike other applications. These are few latent difficulties, we might want to design for,

- *Mentors Apprehensions*

Each and every mentor has his own set of skills and knowledge along with his experience,which will be helpful for him while mentoring which will make him as good mentor. His way of mentoring students and the way he utilizes his talent,knowledge and technology with his curriculum to help the students defines him and makes him an outstanding mentor.

- *Mentors Expectations*

Mentors are suppose to comprehend their literal role and responsibilities so they do not become discontented and drop out. Screening of talented and enthusiastic mentors should be held, where the mentors are guided about their responsibilities effectively. And the students should be allotted to each mentor based on the skills in mentors which are helpful to the students needs.

- *Parents' Concerns*

Parents usually feel exposed by the trend of a stranger providing guidance to their ward and encouragement to their wards. Parents gathering should be held frequently to gain parents trust and confidence on mentors and make them realize that their children are in right hands to be mentored by the authorities of the Oragnization.

- *Student's Skepticism*

Youngters are nominated to involve in the required mentoring platform to provide assistance to their juniors or classmates. Once again, open communication is serious[12]. We need to explain that members are designated as they appear to have calibre and the mentor can aid them to realize the calibre which they have within themselves and can offer a willing, liberal ear.

- *Technology shortfall*

Students or mentees participating in the program need to have e-mail and access to a computer or android mobile [11]. The organization is suppose to have the technology (software/Web site) in place to create a safe and secure environment for mentoring pairs to communicate.

VI. CONCLUSION

Traditional mentoring programs will sway but E-mentoring is a increasing trend. E-mentoring is user friendly and is easy to use software, as it is based on client-server model. The responsibility of a mentor is to showcase the possibilities to the students and to guide them on possible outcomes. E-mentoring offers a modern approach of facilitating learning and mentoring in this era. For e-mentoring to work, however, it is necessary that trust between mentor and mentee is formed. The objective of any mentoring program is to establish win-win situation for all participants; mentor, mentees and the Institution. In other words, the absorption of e-mentoring practices can play a momentous role in attaining important organizational outcomes.

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