

# Mobile-based Student Council Voting System

## Case of Federal Technical Institute (FTI)

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**Abstract:-** This mobile-based student council voting system is mainly designed for the Federal Technical Institute students' council. This android application voting system is an easy, fast, and efficient voting system. And it can be performed simply with a little knowledge of the android phone. Mobile application voting system helps its users (students) to vote for their representatives. So Generally, this all features of the system are making the students interested to use mobile voting system. This project emphasizes the manual system that is described above. After studying this manual system by using different types of methodologies we have developed this project that simplifies the coordinating and advising system by automating some of the activities that are done manually. Generally, this system has a major mechanism to submit vote by the mobile application, enable students and candidates to get fair elections and other users. This project will show the design of the project and the information of the tools and techniques that were used to document the project and implementation tools of this system such as XML, PHP, and android java. And we try to put sample UI and sample algorithm.

Our system will have a centralized database and each user will have a user account that enables them to do some tasks such that votes check their status is vote or not, the candidate also checks the current point during the election, and Authorized Administrators will manage the system on their android mobile phone with the network. They will have the privilege to log in to the system and they can Register new and view existing voters, candidates, and EC records. And this project also talks about the advantages of the mobile-based student council voting system that motivate different institutes and organizations to develop mobile-based student council voting system applications. This project also expresses the key issues that need to be considered during the development of this project.

**Keywords:** XML, php, android java, sample UI and sample algorithm.

### INTRODUCTION

Nowadays use of the information and communication technology all over the global world is becoming very advantageous in every activity of human beings. Due to this advantage, we are interested to develop a mobile-based student council voting system for the Federal Technical Institute (FTI) Student council is the most important and crucial body to get the student's proper attention to Student service, academic problems and convey them to the respective authority.<sup>[1]</sup> Previously in the election, there have been some problems that are a voter or the student has not

participate during the Election Day because they lost their voting paper and no need of queue<sup>[2]</sup>. Some of the problems that the student council addresses include academic problems such as, food, dormitory problem, maintaining the peace and coexistence the students, and other issues of students concerning the learning and teaching activities to solve the above problems effectively, we need an effective student council committee. The development of android application nowadays the most useful Electrical device product and it's using by many people in the world, the process of voting is not just only election for the selected like who will be the leader of the student council but also will do for choosing of the person who will be the class representative in teaching and learning process.<sup>[3]</sup> In voting system security is vital either it's the traditional paper-based student council voting system it minimizes the problem of security such authentication confidentiality integrity etc.<sup>[4]</sup> Mobile based Student council voting development is to provide all students of Federal Technical Institute (FTI) with the ability to quickly, easily and securely vote their Student council members during the election period which is held in every two years. The manual student council voting system need the students to attend physically at voting station in person, no saving time, needs effort and also expose the others barriers to voting therefore this will increase the voter to turnout during the election day and thereby make any decision more representative of the electorate's views.

### VOTING SYSTEM

Election student council is the major activity in every university in Ethiopia the so the elected student will stay on authority for 1 or 2 years it depends on the university rule. It is an activity wherein each student is required to settle on from a group of candidates who will represent each position within the Student Council. For the scholar to accomplish this, the scholar must undergo several processes. First, the scholar must attend the Administration Office if he's a registered voter, then goes to the voting area and chooses the candidates he likes.

When voting is going on or done manually using ballot papers and using pen, the student supposed to do tick or put a mark alongside the candidate of choice most of the time this leads to so many spoil problems for voters because of ignorance of rules of the students those who are feeling hungry to vote<sup>[2]</sup> During the election time the students are

physically present and contact or meet in the election hall, In case of time consumption: the students spend very much time on the Election Day, rather do other activity or task of academic relative's things. Concerning human power consumption: more students are needed to operate the election process. And during counting score of the candidate get from the election. So many graduate class union member students are participating to count. So, this application system developed the android application voting system to make the process easier or to remove students during the election day [3]. and this paper makes the students vote where they are in the university and out of it plus almost all students are involved in voting due to the easier mobile voting system, therefore it minimizes the cost of resources like papers, pen, etc.

most of the time a voting system with system paper ballot brings several problems such as tabulation votes and slow rate of counting, inaccurate results due to human error, poor presentation of the ballot papers are unsuitable for the voter the student will not participate in voting and turnout [4].

#### ADVANTAGES OF MOBILE PHONE VOTING

In modern society, mobility has become one of the most important ICT trends, affecting all facets of modern life (Kumar et al., S.a:52). Due to these technological revolutions in the ICT industry, the deployment of mobile systems can offer sophisticated and complex services, for example, mobile information systems, mobile television, mobile payments, and even mobile government. Because these devices provide rapid access to information, they're in high demand. This research proposes the use of mobile phones to facilitate diffusion of Mobile phone voting with a short period of time and

Has reached a larger number of students in a short period.

A very long time to do calculation [3, 4, 5] the application can be replaced the ballots that were used before during Election Day. So, this project can reduce the cost for preparation of Election Day. Furthermore, the result can be calculated automatically and it will not miscount. This is because the result will be calculated by the database collector that was created. Thus, the result will not be taking a long time to show up which is the existing method to do that used a ballot will taking. [6]

the important Voting applications are requiring to make the process of choosing a representative easy and quick [7], For the development of student council voting (SCV)student data 's such as names, ID number, emails, Departments are required. [8,9]

The android voting system encourages many students to participate in the voting process, However, only Registered student can participate in the voting process. [10] The development in the mobile device, wireless, android technologies, and data communication result in view applications that will make the voting process easier and efficient. [11]

#### SYSTEM DESIGN

After the determination of the requirements, it is the design that follows. The design is all about stating the design goals of the system and subdividing the system into smaller parts to tackle the problem in a modular approach. This phase

includes the description of each subsystem and the deployment of the subsystems. Not only had these, the database related concepts such as relational schema as well as the normalization of the database are also included. For the database purpose, a class diagram is used instead of an E\_R diagram in the object-oriented approach. And in this system, a related voter, candidates, and other information are found in the database. This means we do the transformation of analysis models of the problem space into design models (solution space). So, this part is to solve the problem or the overall structure and also the system will be discussed in this phase

#### PURPOSE AND GOAL OF SYSTEM DESIGN DOCUMENT (SDD)

The purpose and design goal of the system is to provide a solution for problems that are listed in the analysis phase. Design goals are specification which the system needs to achieve.

**Performance:** the system needs to have maximum throughput at the minimum time to allow many users to access concurrently, and it should not take much space to be installed on users' cell phones.

**Maintainability:** the application should be easily scalable and extensible to add new features. And also, it should be easily modifiable to make changes on the functionalities. To achieve this good functionalities and open documentation of the system is very important. The maintainability of the system includes:

**Perfective:** adding new functionalities or changes to the system.

**Adaptive:** adapting changes to the external environment, changes to the government policy.

**Corrective:** fixing errors on the system.

**Preventive:** increase systems maintainability and reliability.

**Usability:** we can mention in two ways.

- ✓ Effectiveness: the system should provide services that help the user to achieve their goal.
- ✓ Efficiency: the users should spend minimum effort and resources to achieve their goal.

**Reliability:** the system should maintain and perform its functionalities under any condition. It should have a minimum frequency of failure and adaptable for failures.

**Security:** the system allows only authorized users.

**User-friendly:** the system should be easy to learn, understand, and operate. It should provide an interactive and interface which can allow unprofessional users to deal with it.

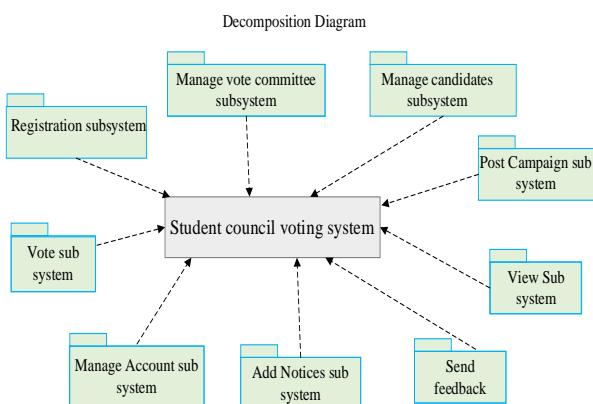


Fig 1. Architectural Design

### EXISTING SYSTEM

The existing system of Federal TVET Institute student council voting system is used to manual election system and distributed information about the election process by the manual system such as write a collection of sheets paper and to post on to different place on boards and on the block of walls. The existing system is used a manual registration of the candidate, election committee, and voters(student) or recording and traditional counting (i.e., the main tools of selecting, recording the student's vote by using pen, pencil, with hard paper, cards, shelf and so on).

### PROPOSED SYSTEM

The system that we are developing is a computerized or automated system that changes the manually going system. Since every manual going service that is done during the election time has to be changed to an android mobile app by using the connection. This newly proposed system is interested that the current system working is wasting resource and not worthy. The current system needs to be changed to worth full, satisfactorily, non-resource wasted, fast deliverable, and trust full system. The client and the user would not be in fear of the security problem of the system. Some of the characteristics of the proposed system are the following

- Automate: When this project is finished; it has done its activity all tasks during election time through mobile.
- Ease to use: The system would be easy for users to retrieve and store data and also easy report generating.
- Trustable: The system would be a security problem solver, not a problem creator. So that no students are choosing more than once, and also no one interferes during counting the vote result.
- Fast: As the time of election no need for waiting time (queue) and when the Election is finished the system delivers to the students who will win.
- User friendly: The proposed system would be user-friendly because the retrieval manipulating and storing of data is fast and the data is maintained effectively and efficiently. And also more than the graphical user interface would be provided in this proposed system, which users to deal with the system very easily.

- It reduces space and material wastage.
- It also avoids redundancy information.
- It distributes information to every student found anywhere through the internet connection and their smartphone, each student can access related data with voting.
- It provides secured Information and keeps personal data.
- It solves time and resource wastage.
- Students can elect everywhere in the specified time using an android phone with an internet connection. Generally proposed system can upgrade and achieve the organization's mission and vision.

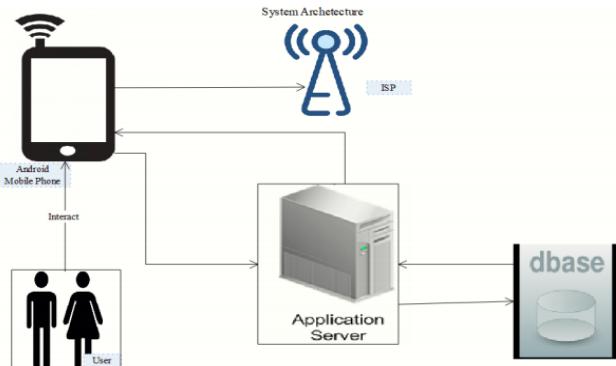


Fig 2. Deployment view

A deployment diagram is used to represent a static view of the run time configuration of processing nodes and component that run on those nodes. In other words, deployment diagram shows the hard ware of the system, the software that is installed on the hardware and the middleware used to connect the disparate machine to one another.

### EXPERIMENTAL RESULT

The application was divided into three User accounts interface or applications:-

1. Vote Apps and
2. Admin Apps and
3. Council Apps.

The Admin Apps or page will have a different User ID and Password so that we can find in admin page, therefore this page used only by the administrators, and they have their own specific job like, Registering a students who wants to vote, post result, and Listing the numbers of Registered Students etc.

Voter, First the voters needs to registered by admin to participate in the voting process, so once the they finished their registration they can Login in to the page so after they done voting they can out from the page by clicking the logout button and it registered on data base.

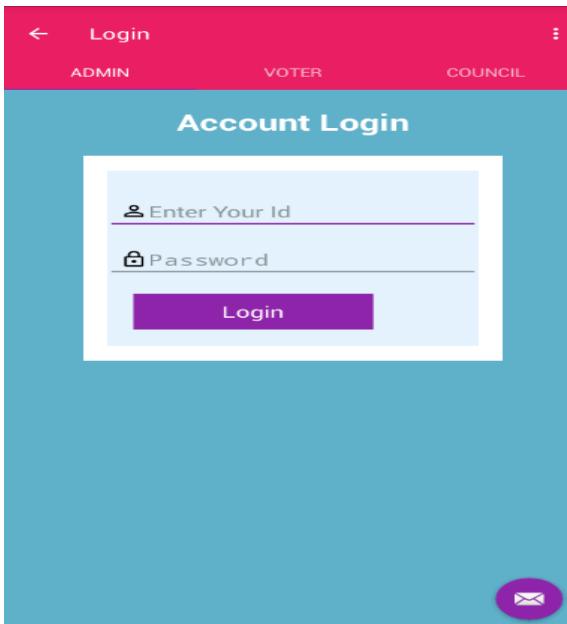


Fig 3. All login interface

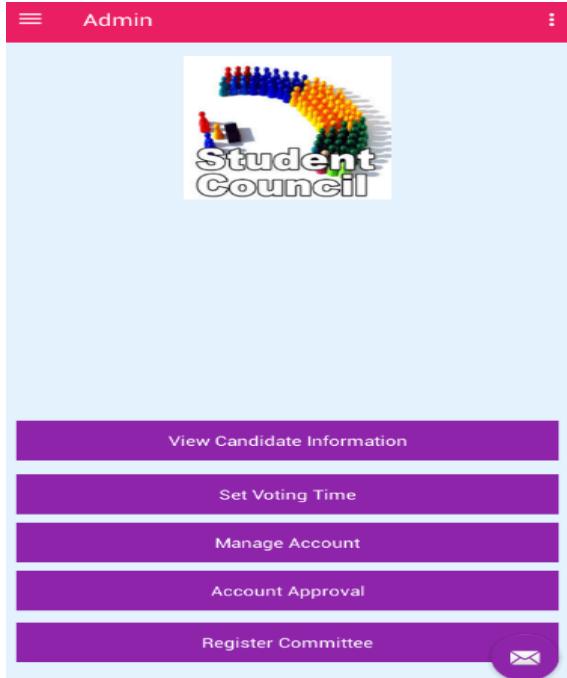


Fig 4. Admin home page

When we first open the application there will be a started page then we click the start button at the time the all login interface will be displayed they are admin, voter, and council so now we can click where we belong to, for if we are admin we click on it then we will put our User ID and Password so when we click it we can get the admin home. fig.4.in this page we can get all information about candidates, we can also set time when it is start and end, in this page we can manage our account, we can also approve either student or not in here and finally in this page there a registered committee so we can register here and give a vote or sound for anyone we want from the candidate.

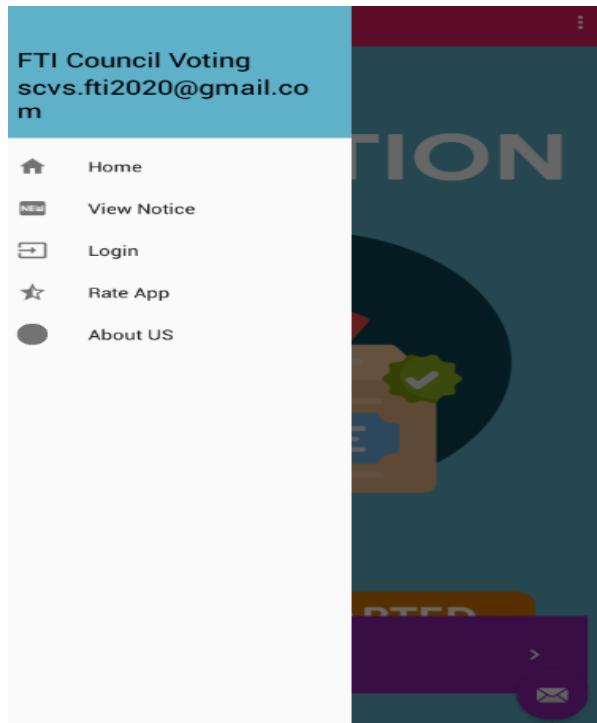


Fig 5. All user voting interface

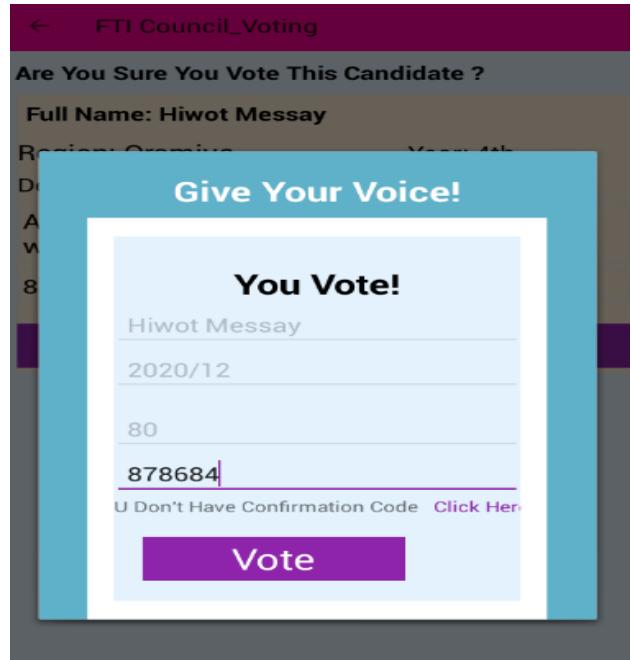


Fig 6. Final voting interface

Fig .5 show that the first page of federal Technical Institute that we can start and get main admin home pages and others and fig 6. show that the final voting interface that the student chooses who they need to elect.

#### CONCLUSION

This system is designed to fulfill the required requirements of student voting for Federal TVET Institute students. And this project has given us a vast knowledge of the different computing technologies. my project enables a voter to cast his/her vote through android mobile with internet without going to the voting closet and additionally able to register

himself/herself for voting in advance, proxy vote or double voting is not possible, fast to access, highly secure, easy to maintain all information of voting, highly efficient, flexible and attractive with easy GUI approach. Hence, this voting percentage will increase drastically. The use of mobile-based voting can reduce or remove unwanted human errors. In addition to its reliability, mobile-based voting can handle multiple modalities, and provide better scalability for large elections. It is also an excellent mechanism. We were also able to learn a lot about system analysis and design of the project, algorithm design, and all about the object-oriented concept with the database. To collect the data which is required for our project we use Open Interview, analysis of the existing manual system. Our model contains an analysis model that contains the functional and non-functional requirements, use case, sequence, state chart, activity diagram, conceptual modeling of classes and user interface prototypes. And also contains a design model that consists deployment diagram, system architecture design, Database table design, Schema design, and normalization and access control. We came to know the different issues that come in the way of the development of the mobile-based voting system. Security was the main issue in the development of this project and we conclude that if these issues are taken into consideration, a mobile-based voting system will become a real-life system from just more a project.

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