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# Android based e-Voting and e-Forum for Student Council

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**ABSTRACT:** The word “vote” means to understand the rights, make a choice from given listed candidates by determining their victory and cast a vote. E-Voting also known as electronic voting serves the facility of casting and counting votes securely. Indicating the Voting in two ways, where it can be performed in physical presence of citizen casting a vote where another way can be carried out through Internet when voter can vote through any place through Android phones(for e-Voting). The idea behind implementing this system is to play a fair judgement for selection process in vital decisions of academic years, speedup the counting of votes, decrease the cost required for human labour to count and manage the votes and instead have built up to develop the Android Application to overcome above drawbacks. Depending on application settings, initially users will be provided with forums to make justifiable decision to vote with. Technology, politics, sports act as a vital space in forums, but the proposed system indicates e-Forums to comment and take active participation in post or any discussion of any given Forum. Administrator may make forum-wide announcements and manage database.

**KEYWORDS:** GCM(Google Cloud Messaging), AES (Advanced Encryption Standard), Android.

### I. INTRODUCTION

The process of e-Voting focuses on increasing efficiency and trustworthiness in management and results. The proposed system increases security of process and speedup the voting process resulting to more convenience. It also influences democratic platform to deliver the subjective knowledge and emphasize on process. The system comprising of Android Application which will allow registration for all users where the Email Id and Password enabled after registering will be utilized to access the forums and to cast a vote. In case of false or forgotten password, re-creation of new password will be allowed by mailing it to Email Id provided by the user. Since the requirement to protect the privacy of voting is necessary, voter’s identity and the vote casted by user will not be revealed throughout the process of casting and counting of votes. Forum are created of the candidates standing for the respective post in Election by Administrator and relative information of their post, qualification and specialization will also be posted along with it. Queries, interactive sessions and voting result is introduced in e-Forums.

### II. RELATED WORK

The users will register themselves on Android Application with Email ID and Password with which they can further access the Application. In case of false or forgotten password, users will be provided a password sent to their Email ID. These passwords will be encrypted in cipher text form by AES (Advanced Encryption Standard) and stored on server. The algorithm will be applied to User Detail section. Forums of candidates will be posted by Admin on e-Forums where subjective information, Qualification and publicity posts will be posted. At instance users and candidates will be users until Admin posts the final selection of candidates to be voted for Election. Users and candidates will be provided with forums to have discussion upon. Updates about Upcoming Elections, Scheduled Events, Festival, Seminars,

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Workshops and final results of votes will be posted on forums. The notifications related to all this updates will be notified to all users and candidates through GCM (Google Cloud Messaging). Administrator will manage the data of User Details, Position Details, Candidate Details, and Results of Voting on database as shown in the figure 1. Admin have the right to plan the scheduled voting process where in a given session user and candidate can cast a vote just once for a post. Since election for various posts will be held on same day, users and candidates will have to vote once for each post. After voting process is done, user's identity and the casted vote by user neither would be disclosed to any candidate, admin or on forum. Just the count of total votes will be estimated and posted on Forums.

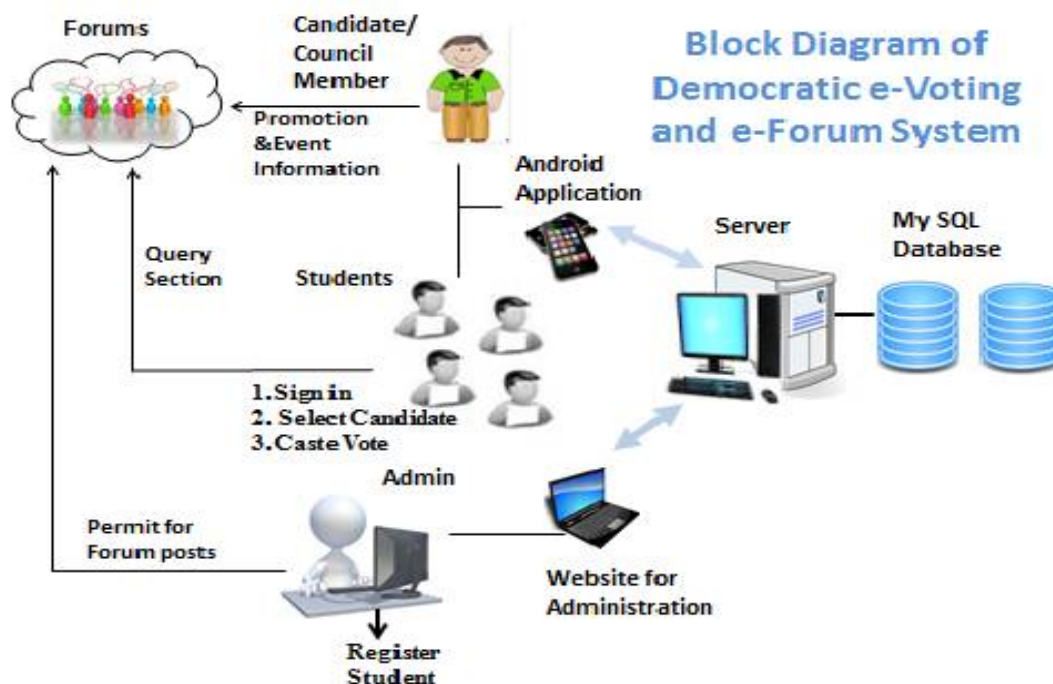


Figure 2 Block Diagram of Proposed System

As shown in above figure, Admin will access and perform operations and maintain the administration through web based platform which is created with PHP, jQuery and AJAX, HTML and CSS. The server (i.e. Middleware) connects the Admin Panel (i.e. Backend) and Android Application. The Android Application consisting of whole Front End is designed in Java because Android phones uses Java Language and not the JVM (Java Virtual Machine).

### III. LITERATURE SURVEYED

#### Literature surveyed for E-voting is as followed:

- Poll-site Voting - It offers the promise of efficiency in voters, which could cast their ballots from any poll site, and the tallying process would be both fast and certain.
- Remote Internet voting: It seeks to maximize the access of voters by enabling them to cast ballots from virtually any location that is Internet accessible.
- Identical Ballot Boxes – It holds the ciphered vote and identification card number, encrypted with their personal 4-digit key.
- E-Voting using fingerprint – It records attendance and vote for the candidate as well.
- EVM [Electronic Voting Machine] – Voter has to simply press a button assigned to his/her desired candidate.

#### Literature surveyed for E-forum is as follows:

- Online college portals to update about academic schedule and timetables.

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- Moodle – A virtual Learning Environment: Online Portal for regular academic updates and notices regarding all sectors of college.
- Our system of e-Forum comprises of updates for students regarding cultural events, sports, upcoming seminars and a secure platform for declaration of voting results.

## IV. PROPOSED ALGORITHM

### a. Design Considerations:

- Derive the set of round keys from the cipher key.
- Initialize the state array with the block data (plaintext).
- Add the initial round key to the starting state array.
- Perform nine rounds of state manipulation.
- Perform the tenth and final round of state manipulation.
- Copy the final state array out as the encrypted data (cipher text).

### b. Description of the Proposed Algorithm:

AES is symmetric block cipher for encrypting texts which can be decrypted with original encryption key. The AES standard states that algorithm can only accept block size of 128 bits and choice of 3 keys-128, 192, 256 bits. Depending on which version is used, name of standard is modified to AES-128, AES-192 or AES- 256 respectively.

Detailed steps:

**Step 1** - [no] key config-key ascii (It configures a master key to be used with AES password encryption feature. 'no' form is used to delete master key at any time.)

**Step 2** - configure terminal (It enters global configuration mode)

**Step 3** -[no] feature password encryption aes (It enables or disables AES password encryption feature)

**Step 4** -show encryption service stat (It displays the configuration status of AES password encryption feature and master key)

**Step 5** -copy running-config startup-config (It copies the running configuration to the startup configuration which is necessary to synchronize the master key in the running configuration and startup configuration).

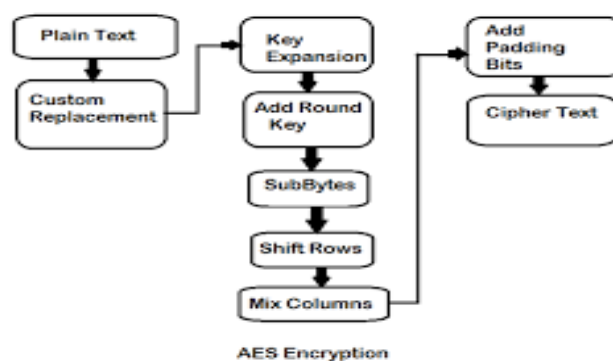


Figure 3 AES Encryption Steps

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## V. FLOW OF PROPOSED SYSTEM

User Panel:

- User Registration
- User Login
- User Update Personal Data
- User View Election News
- User View Election Position and Candidates Details
- User Cast Vote
- User View Result
- Forums

Admin Panel:

- Admin Login
- Admin Verify User
- Admin Add Position Details
- Admin Add Candidate Details
- Admin Starts Voting Process
- Admin Ends Voting Process
- Maintaining Forums

## VI. SIMULATION RESULTS

Following figure indicates the pre-voting and post-voting activities. ViewResultDetails displays total number of votes acquired by a candidate after voting has been done and ForumDetails displays post and discussions held on it within Administrator, Users and Candidates.

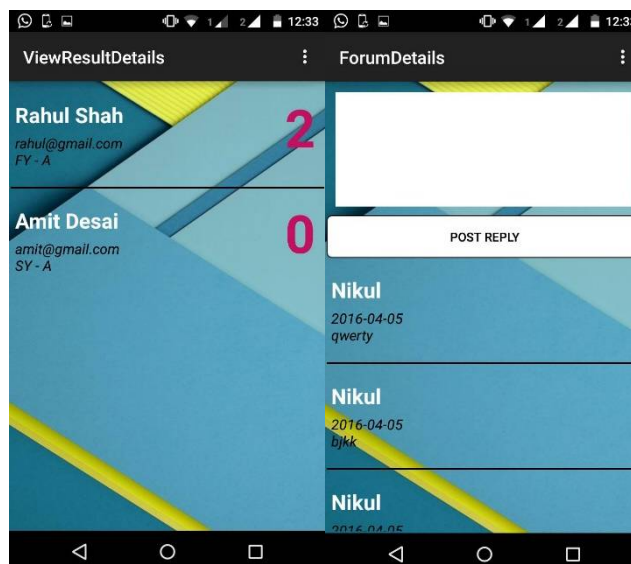


Figure 5 Android Voting Application

## VII. CONCLUSION

Since system can be used anytime and from anywhere by the users, the users can keep themselves updated with all things going in an organization. No one can cast votes on behalf of others and multiple times. The proposed system



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saves time and human intervention. It makes a fair policy as everyone's opinion is considered for deciding the vital decisions. Admin can get instant results as users will be in frequent use. The system is proved to be more flexible and convenient to be used.

## VIII. FUTURE WORK

To enable users of other mobile platforms to participate on votes, this Android Vote implementation should be re-implemented on other platforms such as Apple iOS or Windows Mobile. After exporting data, they could be fed into verification software that recalculates all necessary steps and recalculates potential problems. The issue of integrity could be solved if Android Vote could use identity providers to assign a participant distinctively to an identity. Proposed system can be taken care more with the presence of HTTPS server which will provide security of data and network too. This system can be made more efficient by using Image-based Captcha. This system is for smaller region and future work can be done on this to extend it to broader level. The entire database of citizens from AADHAR database can be integrated in this system increasing security in identification through iris and thumb scans.

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