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FEASIBILITY REPORT

AADHAAR BASED VOTING SYSTEM

FEASIBILITY PHASE

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EXECUTIVE SUMMARY

- **Aadhaar Based Voting System** is an online voting system in which any citizen of the country who is above 18 can vote using his/her Aadhaar Card at their place without going anywhere but on a secure **web application**. The main objective of this system is to reduce the trend of fake voting and the number of malpractices done by the nominated candidates.

- In this application, a person who is eligible to vote will be given a username and password by the authorities. Voters have to **login** into the system using the username and password. After this process, voters have to give their Aadhaar number to **authenticate** themselves. Once the Aadhaar number gets verified, the voter can cast their **vote** by clicking against any one of the given options. After the voter casts their vote, a provision of the button disabling and **automatic logout** will be there to prevent multiple voting by a single user. The same process continues for other voters as well.

In this way, we can have a fair practice of elections in which there is no partiality and people can trust that their votes will go to the right place only.

PROBLEM STATEMENT

➔ Nowadays, the Indian voting system is going through a lot of trouble. Though our Election Commission has taken many steps to reduce the misuse of Electronic voting machines, yet the nominated candidates opt for many **unethical** and **illegal** ways to win the election. Some candidates use muscle power and capture the booth too. Also, there are many scenarios in which many unregistered voters enter the polling booth and even cast multiple votes. Also, after voting, there are many employees who along with some party members change the result figures.

➔ Hence Election commission ends up releasing **biased** results which lead to nuisance in the country and sometimes, **re-elections** have conducted that **waste** a lot of resources, time and manpower. So to resolve such cases and reduce the number of **malpractices**, an Aadhaar based voting system should be adopted in which there is an authentication system through the Aadhaar card of the voter and also the data is secured and not supposed to be changed by anyone.

PROJECT BUSINESS REQUIREMENT

- From the past few years, we can see that the present majority system leads to many problems. **Money** and **power** influence the electoral system mostly. Votes are being like market goods through buying and selling. Government machinery is also misused by the ruling party and government both at the state level and union government. Muscle power is used for **booth capturing** and scaring the voters and the polling staff is also a major issue.

- So to overcome these issues, there is a need for a powerful system in the market which is capable of resolving these issues. Aadhaar based voting system will be a **secure** and **unbiased** system as each voter who is voting through this system will be authenticated based on his/her Aadhaar card number. So there will be no multiple votes and the votes that have been cast through this system will be secured through **blockchain** and it is not possible to delete/modify them. Hence voters can trust this system.

ASSESSMENT OF OPTIONS

TECHNICAL FEASIBILITY

- A basic Aadhaar based voting application can be designed with JavaScript, CSS, HTML, C++, etc. But the **security** plays a major role in the development of any E-voting system. Availability, integrity, confidentiality, non-repudiation, and authentication are key areas in computer security. By amalgamating these areas of security, together they form a cohesive bond that helps guarantee voter trust in the E-voting system.

- However, many threats may hinder the E-voting system to function correctly such as **DoS** attacks, **worms**, **viruses**, and **Trojan** horses to name a few. It is imperative to correct all weaknesses of E-voting systems to ensure a full voter trust compared to that of traditional voting, which can be done by implementing blockchain.

FINANCIAL FEASIBILITY

- As per the current voting system in India, an M3 EVM cost about **Rs. 17,000** per Machine. With additional mobility and scalability issues faced by EVM machines. Also, a large amount of physical infrastructure and organisation cost is needed. Whereas the Proposed System is more **cost-effective** & also mobility and scalability is not an issue for it. In addition to this, in the case of online voting through the app using Aadhaar as the medium of **authentication**, will reduce the overall cost of physical infrastructure.

S.No.	EVM Type	EVM Cost
1.	M3	₹ 17000
2.	M2	₹ 8670

Source: JagranJosh

Table 1: EVM Cost Classification

MANAGERIAL FEASIBILITY

● In Aadhaar based voting system voters can directly vote through the web application on their devices with their user ID requiring no major physical infrastructure.

● Resulting in a **profuse** reduction in managerial pressure on the Election Commission of India. Saving managerial time and manpower required for election **duties** and organising physical infrastructure.

ECONOMICAL FEASIBILITY

● As the scope of this study requires the presentation of the **cost-recovery** analysis of the introduction of E-Voting, it is important to stress that this is a relatively complex task that depends on many hard-to-predict factors.

The cost of building such a system depends on a wide variety of factors, which include:

1. Voting protocol selected

2. Hardware required

3. Software licenses and custom development costs

4. Complexity of the solution, necessary integration with existing

information systems

5. Voter authentication methods

6. Personnel training, etc

- To identify the actual potential costs of such a system, a separate Request for a **Quotation** shall be sent out to all the major vendors worldwide. Although whatever the cost is, in the long-term the cost of building the project can be balanced by continuous savings in election management.

SOCIAL AND CULTURE FEASIBILITY

- Aadhaar based voting system will have a great impact on our society. By reducing the cultural boundaries amongst people it will increase the number of participants in the voting system as it allows the voters to vote from anywhere in the world upon **authentication**. It will give our country a secure and efficient election as the data will be **encrypted** and secure.

- This system will guarantee the voters that their votes are correctly issued and are counted according to the intentions of the vote. It will also reduce the cost of the voting system and the saved money can be used for the benefits of the people of the country. The most important benefit of this system is that it will bring an accurate and quick **publication** of the results and the common people of the country can trust this result.

SAFETY FEASIBILITY

- Our current voting system in India is losing its trust and popularity due to unethical practices in EVM machines. People in India are demanding a more **promising** and **trusted** voting medium. And with the increasing footsteps of humanity towards the information era, to sustain the technology and speed demands. Aadhaar based voting system can be considered the most promising, time saving and secure solution.

RISK ASSESSMENT OF VIABLE OPTIONS

To reduce all kinds of risk, the software requirements should be final at the project kick-off.

- **Scope:** This software aims to deploy the application on the world wide web and to make it **accessible** to everyone. But the project team may not identify all the deliverables when requirements are not properly analysed.

- **Time:** Upon assessment, it is found that time risk may get indulged when there are **insufficient resources** to proceed that ultimately leads to insufficient performance and unit testing.

- **Cost:** It is one of the major risks that would require attention in the production model. The software offers a feature-dependent technology, so the final cost will vary in accordance with the **project requirements**.

- **Environment:** The is a web application and could be run on any type of mobile device or a desktop with browser support. The browser must **support JavaScript** applications and cookies.

- **Social & Security:** These include **public security** and the inability of people to participate in the motion. The software aims toward providing a **leakproof** voting system for all the people.

- **Legal:** In the development phase of this application, there are no legal barriers as such but in production mode, it would require permissions and **authorization** from the concerned government bodies. This includes due diligence to identify any legal **constraint**.

Risk Event	Risk Probability (P)	Risk Impact (I)	Risk Event Score (P*I)
Cost crosses the desired allocated budget	50%	35	**1750**
Customer release not on **Time**	35%	40	**1400**
Software **Scope** doesn't complete the deliverables	25%	28	**700**

Table 2: Extreme Risk Classification

RECOMMENDED OPTIONS FOR FURTHER ANALYSIS

- Since the blockchain-based e-voting systems are still required further testing; we are not fully aware of all the risks that are associated with the **security** and **scalability** of such systems. Implementing blockchain voting practices can bring unknown security risks and vulnerabilities. Blockchain systems require a more complex design in software and management skills. These critical issues should be discussed in more detail in real voting practices using the previous experience.

- For this reason, e-voting systems should be applied to **small pilot regions** and then its scope should be extended. The internet and voting devices still have many security breaches. Performing electronic voting through secure and reliable internet will require significant security advances. Although it may seem like a perfect solution but it is equally important to know that blockchain-based technology is still at an early stage in an E-Voting solution.