American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

< Digital Online Electronic Voting App >

Software Development

Project Management

Project submitted

By

Mahdi Md Mohaimenul Islam

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1.0 Introduction:

The purpose of this document is to develop a Digital Online Electronic Voting App which will able to process data with computer software and record voting data. In this app voter can easily cast his vote. Due to the requirement, Admin can manage all those things like manage voter, voter authentication, add manager and staffs, add election etc. For the secrecy of the vote, Admin will avoid any connection between the voter's identity and the vote cast in this app. In this way, This app can more secure for all users. Many e-voting solutions lack transparency for voters and even for election administrators. If not carefully planned and designed, the introduction of e-voting can undermine confidence in the whole electoral process. This technology intends to speed the counting of votes, decrease the cost of paying staff to count votes physically and can provide progressed availability for disabled voters. Moreover, results can be detailed and distributed quicker.

2.1 Project Title: Digital Online Electronic Voting App

3.0 Objectives:

The objective and specific goal here is to develop a web-based application, which includes methods like registration of voters, vote casting, vote counting, and pronouncing results etc would constitute a great arrangement to replace current system.

4.0 Justification:

Our system will provide the following benefits to the user-

Electronic Voting Machine (also known as EVM):

- Can store voter information
- Can observe voter status
- Can check room availability for waiting
- Can generate list for the voters from the system

• Can calculate total voters and votes.

• Can cancel the appointment request from users.

• Can reschedule any appointment.

• Can consider the special needs.

• can check voter identity.

• can check voter ID Card Number.

5.1 Stakeholders analysis:

In this Online Voting App, there are four types of users who will use this system:

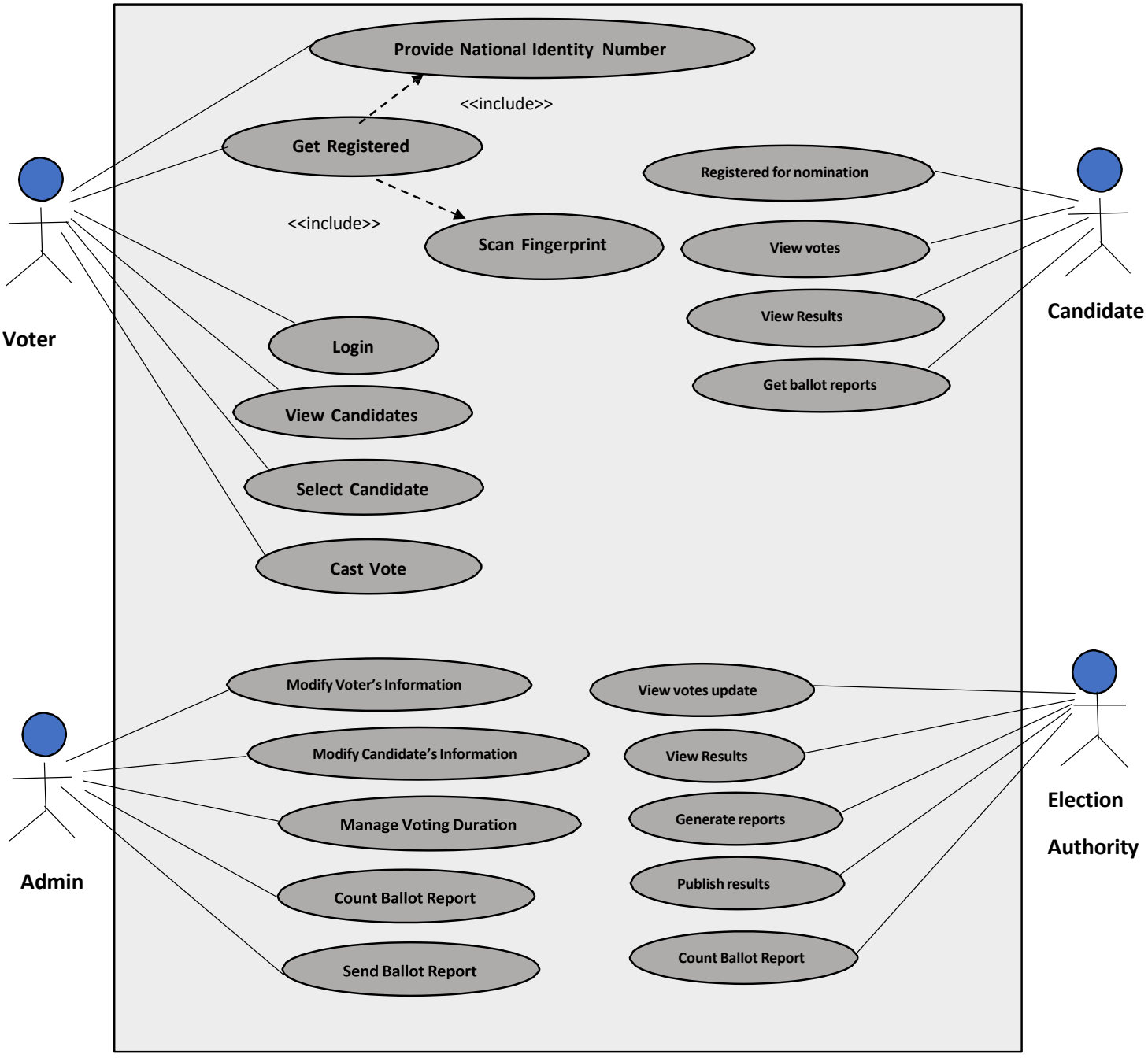
1. Voter:
    - Voter Can Register and login by his own voter ID card.
    - Voter can view candidates.
    - Voter can cast vote
    - Voter can provide and scan fingerprint for casting vote in this app.

2. Admin: Admin can alter each thing. Additionally, can maintain entire system, delete something in case he will find any offensive.
    - Admin can maintain the entire system.
    - Modify candidate's Information.
    - Modify Election authority Information.
    - Modify Electoral Information.
    - Add voting time duration.

3. Election Authority: They can verify single-vote verification, which ensures members don't inadvertently vote more than once
    - Verify/edit results
    - Generate Reports of election
    - Generate result transcript
    - Authorize result of elections

4. Candidate:
    - Register for his Nomination
    - Login profile with username and password.
    - View update of voting result.

Use Case Diagram



6.0 Feasibility study:

A Feasibility study is used to access whether a proposed project should be undertaken.

Technical Feasibility:

The main objective of technical feasibility of this system is to determine whether the project is technically feasible, to produce the software profitably. It inspects whether software can be built at all with available tools and experts.

Our Project is a complete web based project. The main technologies and tools that are used in this project are: HTML, CSS, MySQL, JavaScript, React.js, node.js, Laravel, React Bootstrap, Context API, Firebase. Each of the technologies are freely available and the technical skills required are manageable. Time limitations of the project development and the ease of implementing using these technologies are synchronized.

In this Online voting system all system analysts, users, programmers and management have a good grasp of what kinds of tasks must be accomplished for software development.

Initially the website of this project will be hosted in a free web hosting space and after that for later implementations it will be hosted in a paid web hosting space with a sufficient bandwidth. Bandwidth required in this application is very low, since it doesn't incorporate any multimedia aspect.

From these it's clear that the project Online voting system is technically feasible.

Financial Feasibility: As our project is a web-based project so that it will have an associated hosting cost. Bandwidth required in this project is very low. There will have an associated cost for bug fixes and maintaining tasks cost. All required cost for final development like software resource required, design and development cost and operational cost is not quite expensive. Labor costs like Managers, Graphic designers, UX designers, QA testers must include all the professionals involved in the development time. your project may necessitate infrastructure changes, such as an upgraded server setup or expanded cloud storage capacity.

We will try to establish a minimal-viable product requirements with the stakeholders, explaining the necessity of limiting the scope and the possibility of adding elements subsequently. These investments are often considerable and may extend beyond the initial launch of your software application. We will keep costs and timelines of this project in check, we will budget around the must-haves to get you to launch. In the future, you can address nonessential features.

From these it's clear that the project Online voting system is financially feasible.

Resource Feasibility: All resource that are required to establish this project are available like programming tools, programming device(laptop), free hosting space(available), programming individuals (Programmers, UI/UX designers).

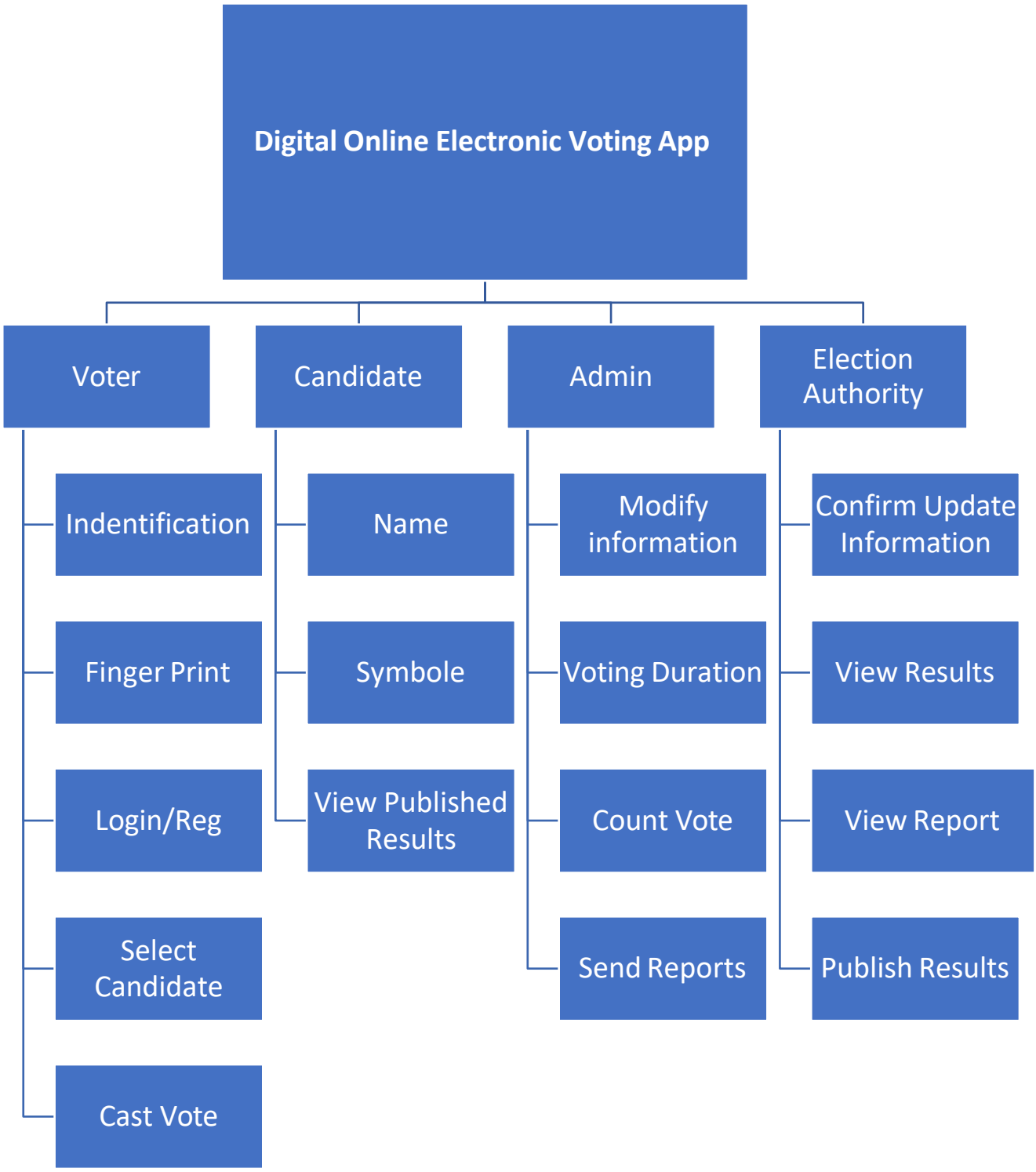
So, it's clearly seen that the project Online voting system has resource feasibility.

Schedule Feasibility:

Timelines/deadlines of project schedule is analyzed for proposed project at the initial stage of this project development. We schedule a Timeline which includes how much times teams will need to complete final project which has a great impact on the project completed time.

So, it's clearly seen that the project Online voting system has Schedule feasibility.

7.0 Systems component:



8.Effort Estimation: In this section we will analyze the cost and profit of this system.

8.1 Project Estimation:

Every business has a budget and wants to know the costs before they're willing to begin a project. A project estimate is your prediction of how much time and money is needed to complete a project. Our project is a Organic type project because our software project and project team are relatively small and simple.

We use COCOMO Model for estimate the cost. The COCOMO (Constructive Cost Model) is one of the most popularly used software cost estimation models. It estimates or predicts the effort required for the project, total project cost and scheduled time for the project. According to COCOMO, there are three modes of software development projects that depend on complexity- Organic Project, Semidetached Project and Embedded Project.

8.2 Effort Estimation and Budgeting:

Project Type	Coefficient <Effort Factor>	P	T
Organic Project	2.4	1.05	0.38
Semidetached	3.0	1.12	0.35
Embedded	3.6	1.20	0.32

PM: Person-month needed for project

SLOC: Source Lines of Code

P: Project Complexity (1.04 – 1.24)

DM: Duration Time in a Months for a Project

T: SLOC Dependent Coefficient (0.32 – 0.38)

Effort PM = Coefficient<Effort Factor>*(SLOC/1000)^P [5500 SLOC/1000 = 5.5k SLOC]

=2.4*(5500/1000)^1.05

=14.3744

Development time DM = 2.50*(PM)^T

=2.50*(14.377)^0.38

=6.884

Required number of people ST = PM/DM

=14.3744/6.884

=2.088

=2

Budgeting : Development Cost:

Total working days =total days*DM

=20*6.884

=137.68 days

=138 days Working hour per day=8

Total working hours = 138*8

= 1104 hours

Total development cost = 1104*500 [per hour salary 500]

= 5,52,000 BDT

Maintenance cost :

Monthly 10 Hours (6 months and per hour salary 1000) Cost=10 x 6 x 1000

=60,000 BDT

Requirement Cost:

Days=15 Working hour=8 Salary=400

Total Cost=8 x 15 x 400

=48000 BDT

Development Cost	5,52,000
Requirement Cost	48,000
Maintenance Cost	60,000
Launching website Cost	80,000
Market promotion cost	1,00,000
Training Cost	1,00,000
Equipment Cost	1,20,000
Utilities Cost	1,15,000
Profit(20%)	1,79,400
Total	135,4400 BDT

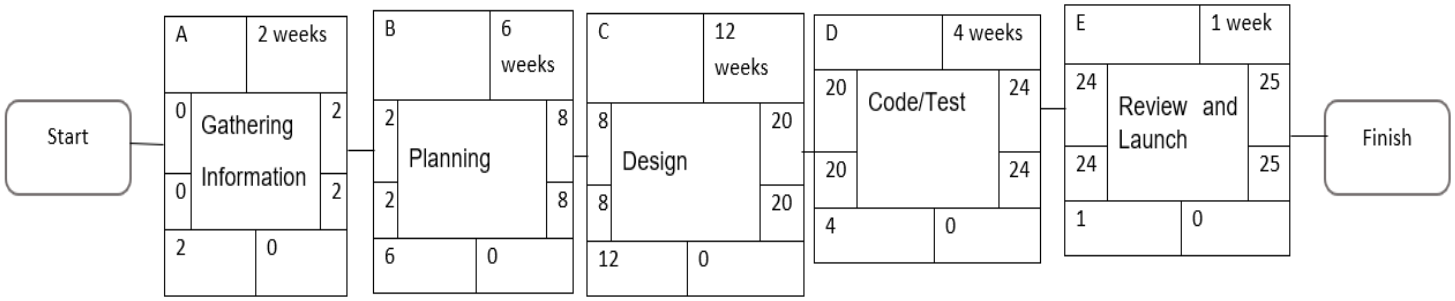
8.3 PROFIT ANALYSIS:

Profit analysis is a measure of project operational efficiency in terms of financial benefits. It will be possible to keep track of the costs and therefore the profitability of the project only if a basic budget has been defined. For profit analysis, estimation is the major activity that ensures project profitability. Through estimating project parameters (such as cost, performance and time) it is possible to determine how the project is changed and to explore current status of project benefits. We increase our staff and developer productivity to get good project efficiency, project profitability. In this project we calculate the development cost, maintenance cost and requirement cost. Our profit is 20% in this project.

9. 0 Activity Diagram:

Key:

Activity Label		Duration
Earliest Start	Activity Description	Earliest Finish
Latest Start		Latest Finish
Activity Span		Float



10.0 Risk Analysis:

Ref	Hazard	Likelihood	Impact	Risk Exposure
R1	Defects in planning	5	6	30
R2	Technology will not meet expectations	3	4	12
R3	Defects in design	4	6	24
R4	Failure to meet the user requirement	3	5	15
R5	Coding of any part takes time much than expected	5	6	30
R6	Possible budget underrun	5	7	35

11.0 Conclusion

Our Digital Online Electronic voting app will allow people in today's mobile and digitally advanced society to participate in the democratic process over the internet. This online voting app will offer the highest levels of transparency, control, security and efficiency of election processes. This voting app will provide society people or voters with a comfortable and secure voting experience and allow election organizers to save resources in planning their next election. For organize an election, planning postal or ballot box elections is a high costs process. Paper-based election voting is cost-intensive and burdensome for the environment. People can get opportunity to give their vote within a short time with internet access in this online voting app. By eliminating the use of physical post and manual vote counting we can avoid result-distorting mistakes such as loss of voting documents and miscounted votes. This online voting allows to access results shortly after the election.

Results can also be verified by the election authority after the election by using this app. This can help society people to save time and reduce cost. It is also very important to Social media marketing. It is the use of social media platforms to connect with people of society to this Online voting app. Publicity at social media about a new lunched software has a great good impact. So that time, when a company choose this online voting app company will select which platform will best for their work promoting.