

American International University-Bangladesh (AIUB)  
**Department of Computer Science  
Faculty of Science &Technology (FST)  
Fall 20\_21**

**Section: H  
Group No: 01**

Topic: Fingerprint based E-Voting system

A software Engineering project submitted

By

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The project will be Evaluated for the following Course Outcomes

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| CO3: Choose appropriate software engineering model in a software development   environment | Total Marks |
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| Project Background Analysis (needs, goal, benefits, etc.) [5Marks] |  |
| Appropriate Process Model Selection and Argumentation with Evidence [5Marks] |  |
| Completeness, Spelling, Grammar and Organization of the Answer [5Marks] |  |
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| CO4: Explain the roles and their responsibilities in the software project   management activities | Total Marks |
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| Content Knowledge (e.g. System Functionalities, Related Product/Services) [5Marks] |  |
| Project Role identification and Responsibilities descriptions [5Marks] |  |
| Presentation Delivery and Defense [5Marks] |  |

**1. PROBLEM DOMAIN**

**1.1 Background to the problem**

* **Voting** is a fundamental process in a democratic system. Basically, voting is a process to choose a suitable candidate or option through the general audiences on basis of majority. It can be for different purpose. On a macro level, it’s easy to think that we’re just one person and that our vote doesn’t make much of a difference. But according to [**Rachael Cobb, PhD**](https://www.suffolk.edu/academics/faculty/c/o/rachael-cobb), chair and associate professor of government at Suffolk University, every vote matters.
* Voting is one of the most impactful things we can do for ourselves and our community even if in the smallest sector. But most often in many places, the process of voting is much backdated and not well secured as most of the places handle the process manually. As a result, there can be manual mistake, corruption issue, security issues. There is a term called electoral fraud, sometimes referred to as **election fraud**, **election manipulation**, **voter fraud** or **vote rigging,** involves illegal interference with the process of an election, either by increasing the vote share of a favored candidate, depressing the vote share of rival candidates, or both. It differs from but often goes hand-in-hand with voter suppression.

## Solution to the Problem

* The solution of this corrupted and manually mistaken voting system for which we are approaching is a well secured “Fingerprint based e-voting system” which can actually reduce the root of the problem. The reason of choosing this solution is because it will be well secured and easy to use in every sector. So, its availability and usage will definitely have a better impact on people. People will be able to prioritize their own choice and their vote will not be corrupted. Not only this, this system is feasible to the meet the business objective because people of all sector will be able to use it for a fair and well managed vote for different purpose, that’s why the system can be used in business purposes.
* Voter’s expectation is to express their support for the chosen candidate without any worries, which will be materialized by the proposed system. Here, every voter’s identity will be checked by two factor verification by the system. Voter identity must be confirmed by the fingerprint of the voter and whenever the person logged in on voting portal punching the voter card, he/she will be notified via text. If anyone loose his/her ID, the person will be able to terminate his/her card from performing any action via dialing specific combination of number. This system will store the votes to the central database via secured connectivity. People who will try to corrupt with the system will be recorded and will take action instantly (block ID and disable fingerprint if mismatched). After finishing the vote taking session, the system will automatically count the votes of whole system and announce the final result.
* According to existing studies in this voting problem area is, current voting system as some country are using software for digital voting but not carrying out all the features like overmentioned proposal. The digital E-voting system is not available at all and not allow every sector of people to use. Existing systems are not securely applying and that is why corruption is visible all over the world. The existing system is not using 2 step verification and card verify policy and for this reason, there might be a possibility to apply one person’s vote by other person. The current system somewhere is internet connectionless and can change anything manually which is absolutely not safe, on the other hand some are connected to internet and carries a possibility to be hacked. The existing systems are not very easy to set up everywhere and not so user friendly. Only the development country and their govt is using with a lot of limitation. In our country is not possible to to set up a much expensive system instantly. So, we are proposing a user friendly, fixed server connected safe and economically efficient and trustable voting system.

# SOFTWARE DEVELOPMENT LIFE CYCLE

## Process Model

* Here we are presenting an electronic voting system based on finger print to ensure privacy, confidentiality and integrity in the voting. Our proposal offers all the advantages like digital national ID card reading, finger print matching. The system also additively encryption cryptosystems. The e-voting system will suitable for multi-candidate elections as well as for elections in which contains neutral votes. The software will develop based on utilizing web API’s and the concept of V-shaped model of software engineering. Which will use with object-oriented methodology for the development of the software.
* Our project requirements are clear that’s why we are using V-model of software engineering. Also E-voting software must be simple and easy to use but the security must be high and rigid which is following the V- model. This model focuses on verification and validation activities early in the life cycle thereby enhancing the probability of building an error-free and good quality product. Higher chance of success over the waterfall model due to the early development of test plans during the life cycle.

## Project Roll Identification and Responsibilities

The rolls of the project are Planning and Sequencing, Resource Planning, Time and cost Estimating, Risk Analysis, Controlling Quality.

* **Planning and Sequencing:** It is a set of multiple processes, or we can say that it a task that performed before the construction of the product starts.
* **Resource Planning:** In software Development, all the elements are referred to as resources for the project. It can be a human resource, productive tools, and libraries. Resource management includes:
* **Time and cost Estimating:** The total time required to complete the project and total expenses to develop the software product is estimated.
* **Risk Analysis:** Risk analysis consists of all the activities like identification, analyzing and preparing the plan for predictable and unpredictable risk in the project. Changes in requirement and technologies and the environment can be a bid risk for develop a software
* **Controlling Quality:** A set of activities designed to evaluate the quality of a component or system. The three class parameters that control software quality are products, processes and resources. Software Quality Control is limited to the Review/ Testing phases of the [**Software Development Life Cycle**](https://softwaretestingfundamentals.com/software-development-life-cycle/) and the goal is to ensure that the products meet specifications/ requirements.