

# **An Effective Meeting Tracking & Management System for Selecting Union Parishad's Project**

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in  
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of  
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## Approval Certificate

This project titled “**An Effective Meeting Tracking & Management System for Selecting Union Parishad’s Project**” submitted by **Mustaque Md. Sami**, Student ID: **012191024**, has been accepted as Satisfactory in fulfillment of the requirement for the degree of Master of Science in Computer Science and Engineering on 24 October 2021.

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This is to certify that the work entitled “**An Effective Meeting Tracking & Management System for Selecting Union Parishad’s Project**” is the outcome of the project carried out by me under the supervision of Suman Ahmmed, Assistant Professor, United International University, Dhaka, Bangladesh.

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## **Abstract**

Strengthening local government institutions is an essential element of effective democracy, which is a prerequisite for ensuring good governance. The practice of good governance is important for decentralized administration. To be involved in decision making and holding people's representatives accountable to the people is identified by many as an important factor of good governance. In a democracy, the people are the source of all power, so any development work in the country is based on their views. Meeting Tracker will keep track of how many people at ward levels are attending the meetings and what they express their views. As a result, the aspirations of the people are reflected and a place of accountability is created.

## **Acknowledgement**

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# Chapter1

## Introduction

### 1.1 Introduction

Union Parishad is the oldest local government body in the subcontinent. The names and functions of the Union Parishads established under the Gram Chowkidari (Village Police) Act 1870 and its functions have changed from time to time in the leadership and political context. At one time it was called Panchayat for collecting tax and maintaining Chowkidars (village police). After the independence of 1971, the Union Parishad was renamed as Union Panchayat and an administrator was appointed to manage the affairs of the Panchayat. Union Parishad was renamed from Union Panchayat in 1983. A major change was initiated through the introduction of the Local Government (Union Parishad) Ordinance in 1983. Under this ordinance, every Union council shall have one chairman, nine general members and three women members. The present law dealing with the Union Councils, i.e. Local Government (Union Parishads) Act, 2009, came into effect on 15 October 2009.

There are 4,568 Union Parishad in Bangladesh. Each Union is made up of nine Wards. Usually, one village is designated as a ward. Meetings in each ward are held at least 2 meetings a year under local restrictions and one of them is an annual meeting. **Therefore approximately 80,000 meetings are held each year all over the country.** In case of implementation of any project, the voters of their ward are directly involved and express their needs in ward meetings. This huge number of meeting information and their resolution management is a big challenge.

### 1.2 Present Condition

At present ward level meetings are conducted manually where no visible record is kept. It is often seen that ward level voters are not present but they are shown as present in the

meeting. Moreover, due to not having a digital meeting tracker, the management (Local Government Division) does not understand when and where the meeting was held and how many people have expressed their expectations. As a result, **the aspirations of the people are not reflected and a place of accountability is not created.**

### **1.3 Scope of Improvisation**

There is scope for this reform through digital meeting tracking. As we know that involvement of the people in the ward meeting is very important because they can present their needs and review the projects that have been implemented. If we track the ward meeting attendance system digitally, we can easily see how many voters were present at the meeting, which can be easily monitored by the management. Meeting resolutions can be easily generated due to being digital. Another great advantage is that public awareness can be created by informing the date & time of the meeting through SMS which can be done very easily in this method.

#### **Highlights on Meeting Tracker project:**

- Ward Meeting Information
- Meeting Resolution
- Attendance system with NID number
- Cell number for Voters
- Broadcast SMS with meeting time and place.
- Track the total number of participants (Male & Female)
- Meeting Resolution with reports

### **1.4 Goals/Motivation of the Project**

The goal of this project is people's participation in ward meeting. As more people can be involved, the more the implementation of the project and the aspirations of the people will be reflected and place of accountability will be created.

## Chapter 2

### System Study and Literature Review

#### 2.1 Detail Study of present situation

There is currently no database to track how many voters are present at the ward meeting and what opinion they expressed. As a result, the authorities suddenly do not understand how many people were present at the ward meeting.

#### 2.2 Literature Review

The Union Parishad latest law – The Local Government (UP) Act 2009 (hereafter called the UP Act 2009) provided a new term identified as ward sabha (ward council) each electoral constituency. Ward made of all the voters of the respective ward. According to the UP law, each UP will have nine wards and each ward will have two ward sabhas in a year of them one is general sabhas. The UP law tells us provisions on the composition, function, power and its rules of activities especially how to manage open ward sabha meeting in a year. The “open” term here means that all the voters of the ward can attend the meeting but **5% of the voters of that ward must be present to fill the quorum.** [1]

Some of the crucial problems relating to the implementation of the ward sabha concept are as follows, as summarized from that particular study and other studies as secondary sources (Ahmed 2016):

Day by day the turnout of the voters in the wards is declining. In some places, the presence of female voters has increased due to non-governmental organizations (NGOs) and the presence of some male voters has made the meetings exclusive. And most of the meetings where they are held are conducted outside the law. The meeting ended without following any rules. [1]

Ward meeting resolutions are not recorded consistently. The previous meeting is not read and it is not known whether any decision of the previous meeting has been implemented or not. Meeting minutes are not available in most of the UPs though UP members say regular ward meetings are held in their wards. According to the law, UP does not take necessary steps to hold the two mandatory meetings at the ward level. [1]

Local officials of various departments posted at the UP level also did not attend the ward meeting. Some UPs ended the meeting by showing 5% (Salla Union of Kalihati, Tangail) voter turnout just to fill the quorum. Due to which most people are deprived of this meeting. [1]

There is a misapprehension stuck between the ward sabha and ward sabha meetings in the field. Sabhas are what people think of as meetings, but the ward sabha's function as a forum or council of voters is distinct from a meeting. These meetings are not supposed by people as the meeting of a ward council where they are members as registered voters. The ward sabha is a forum for reflection of UP activities and its vision and plan. [1]

Bearing in mind the meaning of good governance, the article discovers the governance condition of the lowest local government tier (Union Parishad) in Bangladesh. From first to last the application of four good governance needles—leadership, people's participation, transparency and accountability and equity—the anticipation is that the result would append a new height to the existing information of local governance. Based on experimental data gathered from the field, the study results propose that the governance condition at the local level is not encouraging for the institution of good governance and strong local democracy system in the country. In spite of integration of unlike terms (ward shava, open budget, citizen charter and right to information) in the Local Government (Union Parishad) Act of 2009, the government has failed to ensure participation, answerability, good governance and transparency. The governance of local government bodies has been set part by unwillingness of local government leaders in ensuring development, lack of people's participation, transparency and accountability and unequal distribution of services. [2]

It has been found from in-depth interviews with male and female members of UPs that budgets are prepared by the Chairman and the Secretary and are submitted in UP meetings. Then, the budget is to be had orally by the Chairman before the parishad, therefore leaving small scope for modify. Chairmen of three selected UPs have been found unwilling to get proposal to form ward shava and organize ‘open budget’. Three selected Chairmen stated their option in the following way:

We did not form ward shava and prepared open budget session since we did not have additional portion to build these provisions occur in actuality. Even people were not found keen to take part in these processes (Interview Data 2010). [2]

Table 2.2: View on People’s sharing in Local Government Activities [2]

| Indicators                                                          | Yes (%) | No (%) |
|---------------------------------------------------------------------|---------|--------|
| People’s participation in ward shava (Ward Meeting)                 | 0       | 100    |
| People’s participation open budget arrangement                      | 0       | 100    |
| Women are encouraged to participate in local government activates   | 25      | 75     |
| Involvement of all level people in project implementation committee | 5       | 95     |

The final objective of the Government of Bangladesh (GoB) is to make sure people’s direct participation in those forums. Social Accountability Mechanism (SAM) is about direct citizen engagement in making public representatives and officials in charge to citizens’ demands. How have citizens engaged in those forums? How have people’s representatives become accountable to the demands of their electorates? This study aimed to rejoin these questions. Citizen’s participation was assessed by citizens (1) access (2) capacity to place claims and (3) understanding of the planning and budgeting processes. This study found that sharing of people all the way through two forums enabled SAM in the lowest administrative tier of the country. Institutionalization of SAM, State-civil society synergy and clearness were some critical factors in success of SAM. However, some confronts ought to be decided to secure more participation of citizens and more responsiveness of the UP functionaries. Cost of social accountability, religious codes and patriarchal restrictions on women’s movement, lack of people’s participation in meetings, lack of education and awareness of citizens and mistrust of the elected officials by the

citizens due to institutionalization of corruption were some obstacles to people's access to those processes. [3]

RFID, mobile communication and IT technologies based system. It is able to collect record and process data on participants of a technical meeting and their actions, attendance or different sessions, visiting different exhibition booths, etc. This system is also be able to generate real-time joined detail reports on attendance, inflow and outflow of the participants during the meeting, a good number and least number interests and activities, etc. This can be done for a multitude of locations and places, and during an extended period of time. [4]

Students' attendance is traditionally taken in Bangladesh where a teacher calls the students by name or rolls number and tells them if they are present. Again, some students sign more than once and pass proxy attendance when passing attendance sheets to students. Both two systems are very time overwhelming. To conquer this problem, this paper represents a smart attendance system prototype. This paper tells radio frequency identification, biometric fingerprint sensor and password based technologies are included to build up a price effective, reliable attendance management system. [5]

In today's age precise data collection is important for maintaining the veracity of research. It is important to select of suitable system and the device used for data gathering reduces chances of errors occurring. A system has proposed with hardware, a cloud server and software for gathering of data manually or from sensors electronically. It would be used in survey, monitoring system in industries, meeting, hospitals, attendance management system of school and colleges etc. This paper included a design and framework for gathering attendance in schools and colleges, for making troublesome process of taking and compiling of attendance easy and efficient. Hence this prototype offers a joined solution for restoring existing conventional attendance system with embedded attendance system. Main advantages are its very low cost, small size, efficient with low energy consumption. [6].



## 2.3 Study of Benchmark Products

| Products                                                                                                                                                                                                               | Features                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Institutional Strengthening of Gram Panchayats (ISGP) Program II Panchayats & Rural Development Department, Government of West Bengal<br><br><a href="https://www.mis.wbprd.gov.in/">https://www.mis.wbprd.gov.in/</a> | <ul style="list-style-type: none"> <li>• Gram Panchayats Scheduling</li> <li>• Digitally count member of the meeting</li> <li>• Digital meeting minutes</li> </ul>                                                                                                                                                                                                                                                          |
| Kerala Local Government and Service Delivery<br><br><a href="http://lsgkerala.gov.in/en">http://lsgkerala.gov.in/en</a>                                                                                                | <ul style="list-style-type: none"> <li>• Wardsabha schedule</li> <li>• Participant entry track</li> <li>• Meeting minutes</li> <li>• Meeting task</li> </ul>                                                                                                                                                                                                                                                                |
| Quick Base Meeting Tracker<br><br><a href="https://www.quickbase.com/exchange/meeting-tracker/386">https://www.quickbase.com/exchange/meeting-tracker/386</a>                                                          | <ul style="list-style-type: none"> <li>• Meeting Tracking</li> <li>• Meeting Agenda</li> <li>• Meeting Note</li> </ul>                                                                                                                                                                                                                                                                                                      |
| MeekingKing<br><br><a href="https://meetingking.com/">https://meetingking.com/</a>                                                                                                                                     | <ul style="list-style-type: none"> <li>• Documenting Meeting               <ul style="list-style-type: none"> <li>○ Creating a new meeting</li> <li>○ Meeting agenda</li> <li>○ Meeting minutes</li> </ul> </li> <li>• Managing Task               <ul style="list-style-type: none"> <li>○ Assigning a task to multiple people</li> <li>○ Adding exiting task to new meeting</li> <li>○ Export task</li> </ul> </li> </ul> |

## Chapter 3

### System Analysis and Design

#### 3.1 Requirement Analysis

After obtaining literature review we found this requirement analysis.

#### 3.2 Features list fixation (functional and non-functional requirements)

**Table 3.2.1: Meeting Tracker Functional Requirement**

| ACTORS              | REQUIREMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DESCRIPTION                                                                                                                                                                                                                                                                      |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ward User           | <ul style="list-style-type: none"><li>• Voter<ul style="list-style-type: none"><li>○ Add/Upload Voter</li><li>○ Edit Voter</li><li>○ Delete Voter</li><li>○ View Voter</li></ul></li><li>• Meeting<ul style="list-style-type: none"><li>○ Add Meeting</li><li>○ Edit Meeting</li><li>○ Delete Meeting</li><li>○ View Meeting</li></ul></li><li>• Attendance<ul style="list-style-type: none"><li>○ Take Attendance</li><li>○ View Attendance</li></ul></li><li>• Approved Project<ul style="list-style-type: none"><li>○ Add Project</li><li>○ Edit Project</li><li>○ Delete Project</li><li>○ View Project</li></ul></li><li>• Resolution Search</li><li>• Send SMS</li><li>• Login</li></ul> | <ul style="list-style-type: none"><li>• Ward user will be able to add, edit, delete and view their ward voters, meeting, attendance, approved project respectively. Also they will be able to search resolution and send SMS with meeting time and date for awareness.</li></ul> |
| Union Parishad User | <ul style="list-style-type: none"><li>• Voter<ul style="list-style-type: none"><li>○ View Voter</li></ul></li><li>• Meeting<ul style="list-style-type: none"><li>○ View Meeting</li></ul></li><li>• Attendance<ul style="list-style-type: none"><li>○ View Attendance</li></ul></li><li>• Approved Project</li></ul>                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>• Union Parishad user will be able to view and search resolution in every ward under respective Union Parishad.</li></ul>                                                                                                                  |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                          |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | <ul style="list-style-type: none"> <li>○ View Project</li> <li>• Resolution Search</li> <li>• Login</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                          |
| Upazila User        | <ul style="list-style-type: none"> <li>• Voter <ul style="list-style-type: none"> <li>○ View Voter</li> </ul> </li> <li>• Meeting <ul style="list-style-type: none"> <li>○ View Meeting</li> </ul> </li> <li>• Attendance <ul style="list-style-type: none"> <li>○ View Attendance</li> </ul> </li> <li>• Approved Project <ul style="list-style-type: none"> <li>○ View Project</li> </ul> </li> <li>• Resolution Search</li> <li>• Login</li> </ul>                                                                                                                                                | <ul style="list-style-type: none"> <li>• Upazila user will be able to view and search resolution in all ward under respective upazila.</li> </ul>        |
| District User       | <ul style="list-style-type: none"> <li>• Voter <ul style="list-style-type: none"> <li>○ View Voter</li> </ul> </li> <li>• Meeting <ul style="list-style-type: none"> <li>○ View Meeting</li> </ul> </li> <li>• Attendance <ul style="list-style-type: none"> <li>○ View Attendance</li> </ul> </li> <li>• Approved Project <ul style="list-style-type: none"> <li>○ View Project</li> </ul> </li> <li>• Resolution Search</li> <li>• Login</li> </ul>                                                                                                                                                | <ul style="list-style-type: none"> <li>• District user will be able to view and search resolution in all ward under respective District.</li> </ul>      |
| Administrative User | <ul style="list-style-type: none"> <li>• Voter <ul style="list-style-type: none"> <li>○ View Voter</li> </ul> </li> <li>• Meeting <ul style="list-style-type: none"> <li>○ View Meeting</li> </ul> </li> <li>• Attendance <ul style="list-style-type: none"> <li>○ View Attendance</li> </ul> </li> <li>• Approved Project <ul style="list-style-type: none"> <li>○ View Project</li> </ul> </li> <li>• Resolution Search</li> <li>• User <ul style="list-style-type: none"> <li>○ Add user</li> <li>○ Edit user</li> <li>○ Delete user</li> <li>○ View user</li> </ul> </li> <li>• Login</li> </ul> | <ul style="list-style-type: none"> <li>• Administrative user will be able to view all module and also admin user will be able to create user.</li> </ul> |

**Table 3.2.2: Meeting Tracker Nonfunctional Requirement**

| REQUIREMENT     | DESCRIPTION                                                                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operability     | <ul style="list-style-type: none"><li>• The system will be developed under web based system.</li><li>• The system will run on any device browser.</li></ul> |
| Maintainability | <ul style="list-style-type: none"><li>• This application is specially for web based</li></ul>                                                               |
| Security        | <ul style="list-style-type: none"><li>• This system will provide only registered user to login.</li></ul>                                                   |
| Performance     | <ul style="list-style-type: none"><li>• As soon as the data inserted every registered user will be able to see the data.</li></ul>                          |

### 3.3 System Design

#### 3.3.1 Data Flow Diagram (DFD)

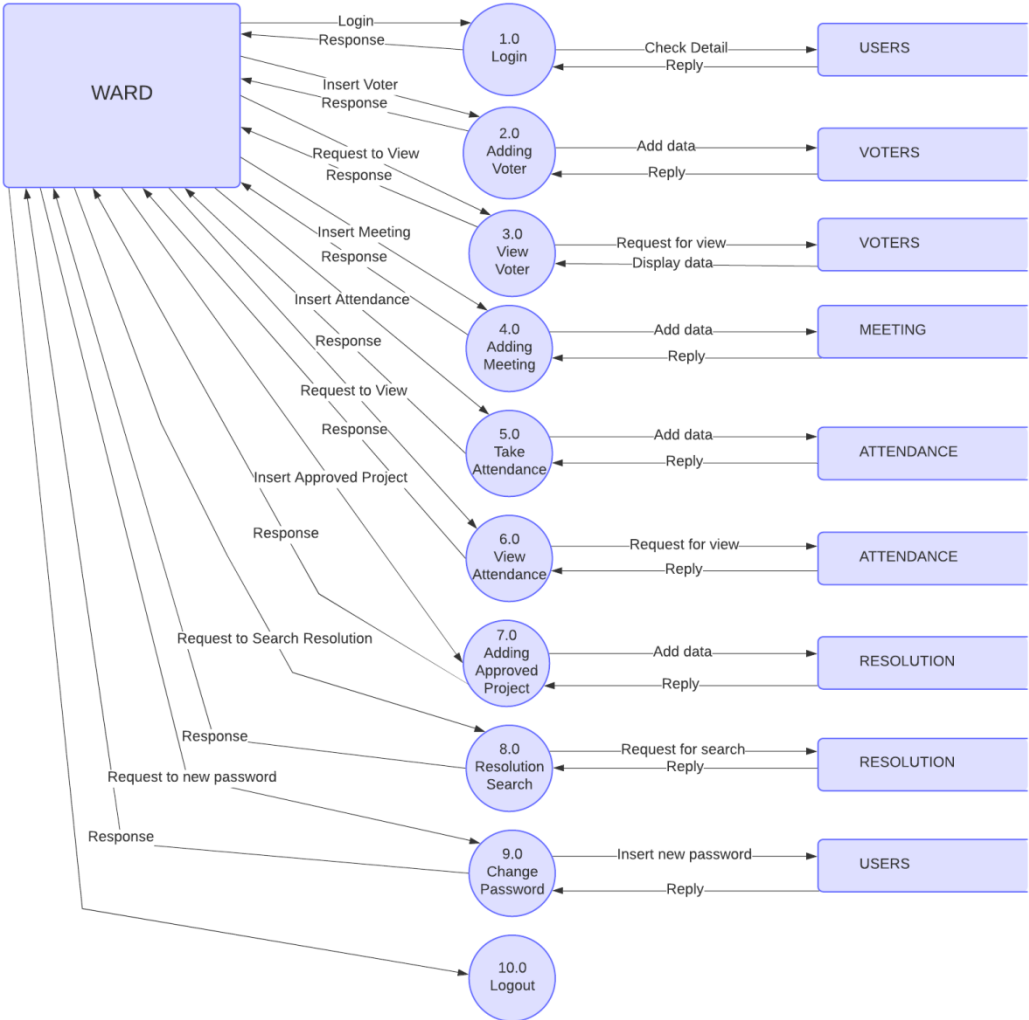


Figure-3.3.1: Data Flow Diagram (DFD)

3.3.2 Use-case Diagram

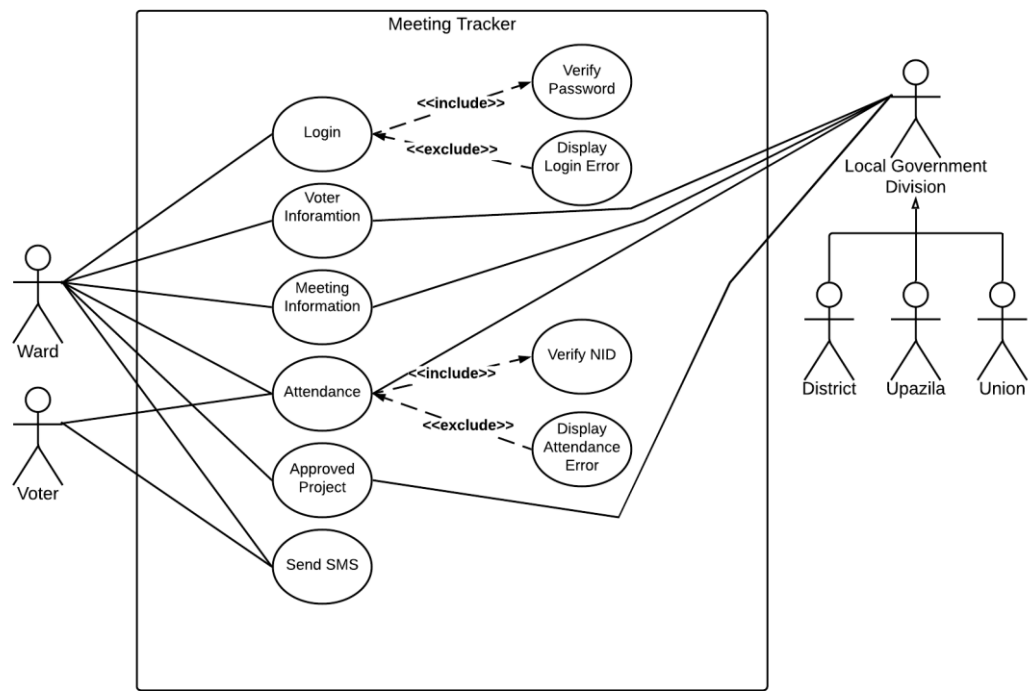


Figure-3.3.2: Use-case Diagram

### 3.3.3 Class Diagram

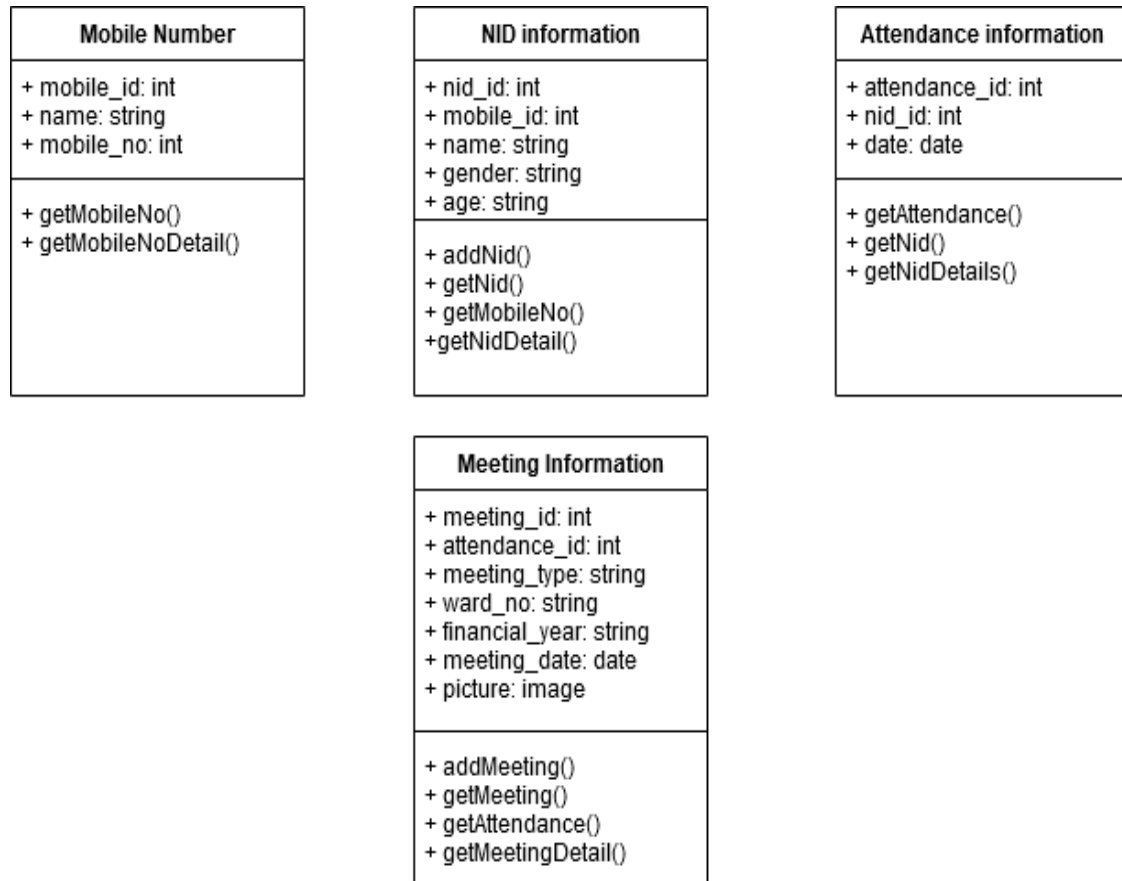


Figure-3.3.3: Class Diagram

### 3.3.4 Time Sequence Diagram

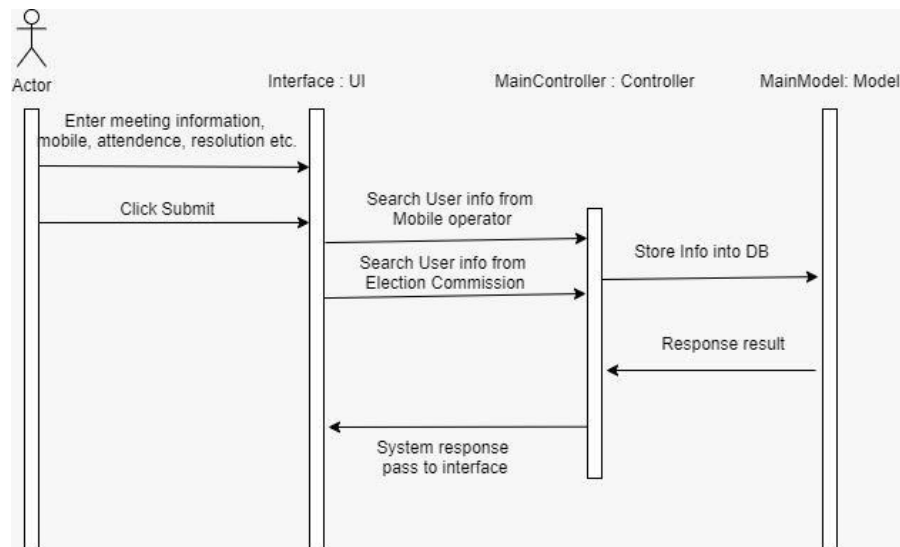


Figure-3.3.4: Time Sequence Diagram

### 3.3.5 Database design and normalization

Normalization is a strategy to organize data into a database. To reduce duplicate data and to ensure that only related data is stored in each table. It helps us to prevent any problems arising from database modifications. In this project three normal forms are used to redesign database.

First Normal Form (1NF) Rules:

- Each table cell should contain a single value
- Each record needs to be unique

Second Normal Form (2NF):

- Derived all from 1NF
- Primary key is stored in each table related to data

Third Normal Form (3NF):

- Derived all from 2NF
- No dependencies between the columns in each table



### Example of Voter Table in Meeting Tracker Database (1 NF)

Table 3.3.5.1: Before using 1 NF (Voter Table)

| Voter ID | District     | Upazila | Union | Ward | NID            | Name            | Phone                       | Gender | Age |
|----------|--------------|---------|-------|------|----------------|-----------------|-----------------------------|--------|-----|
| 1        | Dhaka        | Dhamrai | Amta  | 3    | 64177<br>50913 | Abdul<br>Karim  | 01711890978,<br>01558765490 | Male   | 40  |
| 2        | Faridpu<br>r | Bhanga  | Algi  | 4    | 65187<br>60926 | Jalal<br>Udding | 01819227766,<br>01789665437 | Male   | 35  |
| 3        | Jashore      | Sharsha | Dihi  | 2    | 64897<br>68798 | Sonia<br>Islam  | 01731996754                 | Female | 38  |

Table 3.3.5.2: After using 1 NF (Voter Table)

| Voter ID | District     | Upazila | Union | Ward | NID            | Name            | Phone       | Gender | Age |
|----------|--------------|---------|-------|------|----------------|-----------------|-------------|--------|-----|
| 1        | Dhaka        | Dhamrai | Amta  | 3    | 64177<br>50913 | Abdul<br>Karim  | 01711890978 | Male   | 40  |
| 2        | Faridpu<br>r | Bhanga  | Algi  | 4    | 65187<br>60926 | Jalal<br>Udding | 01819227766 | Male   | 35  |
| 3        | Jashore      | Sharsha | Dihi  | 2    | 64897<br>68798 | Sonia<br>Islam  | 01731996754 | Female | 38  |

### Example of Voter Table in Meeting Tracker Database (2 NF)

In order to make Meeting Tracker Database in 2<sup>nd</sup> Normalization form, I partition Table: 3.3.5.2. I have divided 1 NF table into three tables (District, Upazila and Union).

Table 3.3.5.3: 2 NF Voter

| Voter ID | District ID | Upazila ID | Union ID | Ward | NID        | Name         | Phone       | Gender | Age |
|----------|-------------|------------|----------|------|------------|--------------|-------------|--------|-----|
| 1        | 1           | 1          | 1        | 3    | 6417750913 | Abdul Karim  | 01711890978 | Male   | 40  |
| 2        | 2           | 2          | 2        | 4    | 6518760926 | Jalal Udding | 01819227766 | Male   | 35  |
| 3        | 3           | 3          | 3        | 2    | 6489768798 | Sonia Islam  | 01731996754 | Female | 38  |

Table 3.3.5.4: District

| District ID | District Name |
|-------------|---------------|
| 1           | Dhaka         |
| 2           | Faridpur      |
| 3           | Jashore       |

Table 3.3.5.5: Upazila

| Upazila ID | District ID | Upazila Name |
|------------|-------------|--------------|
| 1          | 1           | Dhamrai      |
| 2          | 2           | Bhanga       |
| 3          | 3           | Sharsha      |

Table 3.3.5.6: Union

| Union ID | District ID | Upazila ID | Union Name |
|----------|-------------|------------|------------|
| 1        | 1           | 1          | Amta       |
| 2        | 2           | 2          | Algi       |
| 3        | 3           | 3          | Dihi       |

### Example of Voter Table in Meeting Tracker Database (3 NF)

In order to make 2 NF table into 3 NF, I need to divide meeting tracker table.

Table 3.3.5.7: 3 NF Voter

| Voter ID | District ID | Upazila ID | Union ID | Ward | NID            | Name            | Phone       | Gender | Age |
|----------|-------------|------------|----------|------|----------------|-----------------|-------------|--------|-----|
| 1        | 1           | 1          | 1        | 3    | 64177<br>50913 | Abdul<br>Karim  | 01711890978 | 1      | 40  |
| 2        | 2           | 2          | 2        | 4    | 65187<br>60926 | Jalal<br>Udding | 01819227766 | 1      | 35  |
| 3        | 3           | 3          | 3        | 2    | 64897<br>68798 | Sonia<br>Islam  | 01731996754 | 2      | 38  |

Table 3.3.5.8: Gender

| Gender ID | Gender Type |
|-----------|-------------|
| 1         | Male        |
| 2         | Female      |

## Chapter 4

### Proposed System

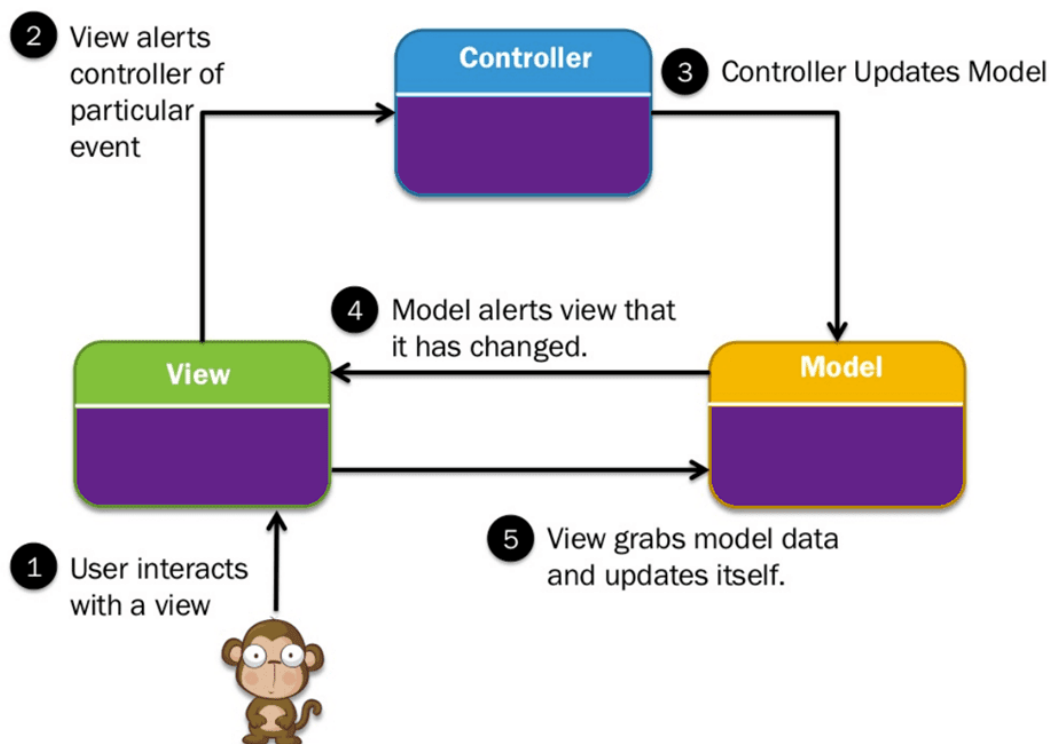
#### 4.1 Summery of Implementation

| Requirement Description                                                                                                                                                                                                                           | Completed | Remarks                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------|
| User Management <ul style="list-style-type: none"><li>Create user</li><li>View user</li><li>Search user</li><li>Delete user</li></ul>                                                                                                             | Yes       |                                                                         |
| User Access Management <ul style="list-style-type: none"><li>Grant user permission</li></ul>                                                                                                                                                      | Yes       |                                                                         |
| Settings <ul style="list-style-type: none"><li>All division data (view, edit, delete)</li><li>All district data (view, edit, delete)</li><li>All upazila data (view, edit, delete)</li><li>All union parishad data (view, edit, delete)</li></ul> | Yes       |                                                                         |
| Voter Management <ul style="list-style-type: none"><li>Create voter</li><li>Upload voter from csv file</li><li>View voter</li><li>Search voter</li><li>Delete voter</li></ul>                                                                     | Yes       | Comma separated file format sample placed in system                     |
| Meeting Management <ul style="list-style-type: none"><li>Create meeting</li><li>View meeting</li><li>Search meeting</li><li>Delete meeting</li></ul>                                                                                              | Yes       |                                                                         |
| Attendance Management <ul style="list-style-type: none"><li>Create attendance</li><li>Search attendance</li></ul>                                                                                                                                 | Yes       | Attendance entry can be done by manually putting NID number or scan NID |
| Approved Project Management <ul style="list-style-type: none"><li>Create Approved Project</li><li>View Approved Project</li><li>Search Approved Project</li><li>Delete Approved Project</li></ul>                                                 | Yes       |                                                                         |
| Resolution Search <ul style="list-style-type: none"><li>Search Meeting Resolution</li></ul>                                                                                                                                                       | Yes       |                                                                         |
| Send SMS                                                                                                                                                                                                                                          | Yes       | Send SMS using API                                                      |

## 4.2 Technology

- Cloud Hosting Server
- Attendance machine
- GPS enable camera
- PHP language
- Apache Server
- JQuery
- Bootstrap
- MariaDB

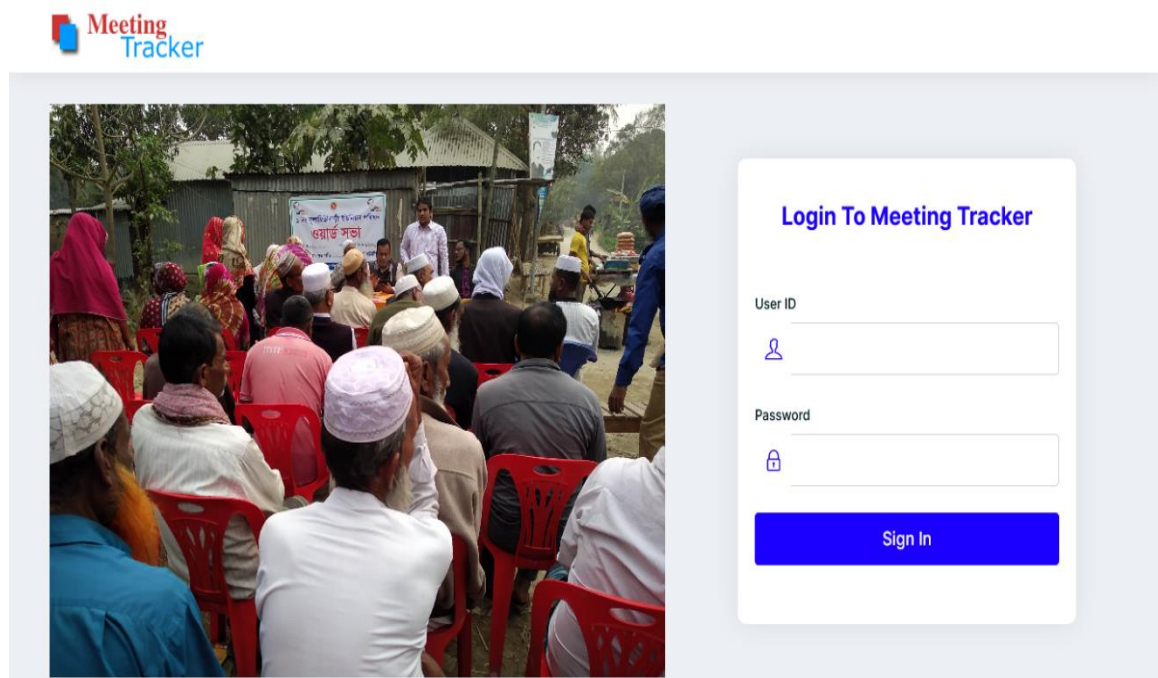
## 4.3 Architecture



## 4.4 Screenshot with features

### 4.4.1: Login Page

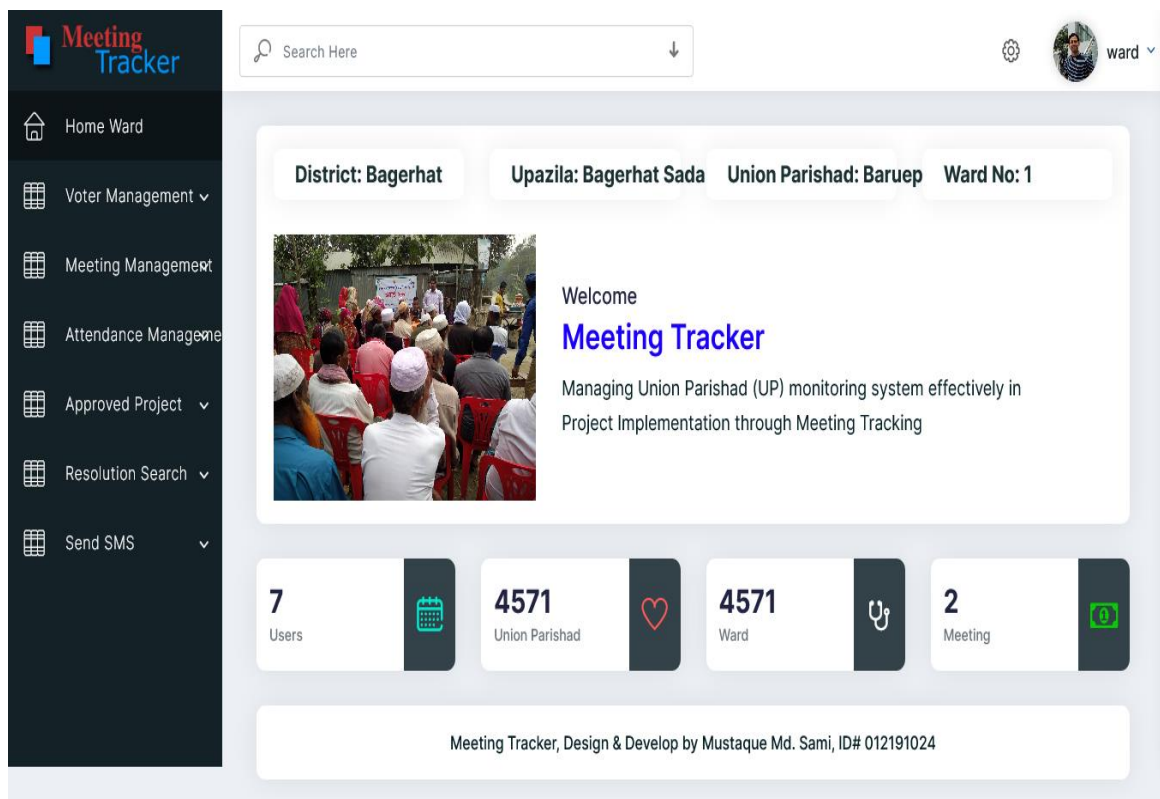
In Login page every authenticate users will be able to login into the meeting tracker system. To login to this system every authenticate user must have their User ID and Password to delve into the system. There are total five types (Administrative, District, Upazila, Union and Ward) of user level and each level of user will get login this same login system. Based on their user role they will get option in their dashboard.



Screenshot 4.4.1: Login Page where all level of users will be able to login with authentication

#### 4.4.2: Dashboard

After successfully login into the system every user will be redirected to their dashboard based on their permission given by the administrator. On the left side of the dashboard user can navigate their menu based on permission. Also user can get information total number of users, total number of union parishad, total number of wards and total number meetings conducted their District, Upazila, Union Parishad and Ward respectively. On right top corner user will be able to update their profile and password as well.



Screenshot 4.4.2: Dashboard of Ward Level User

## 4.4.3: Voter Management

### 4.4.3.1: List of Voters

Ward level user will insert the voter's information in their respective ward. After inserting voter list in ward they will be able to view list of voters in their panel. They will be also able to modify and remove any respective voter list. There is a option to upload bulk voter information in csv/excel format.

The screenshot displays the 'Meeting Tracker' web application. On the left is a dark sidebar with a menu containing: Home Ward, Voter Management (expanded), Voters, Upload Voters Info, Meeting Management, Attendance Management, Approved Project, Resolution Search, and Send SMS. The main content area has a top header with a search bar, a settings gear, a user profile, and a 'ward' dropdown. Below the header, the 'Voter' section is active, showing two buttons: 'Upload Voters' and 'Add Voter'. A table lists two voters with columns for NID, Name, Phone, Gender, Age, and Action. The footer contains the text: 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

| NID        | Name  | Phone       | Gender | Age | Action                                                                                                                                                                      |
|------------|-------|-------------|--------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 102345678  | Nahid | 0155678765  | Male   | 45  |       |
| 2147483647 | Mitu  | 01716543212 | Female | 32  |   |

Screenshot 4.4.3.1: List of Voters



#### 4.4.3.2: Create List of Voters

In this section ward level user will be able to create voter list. To do that user will have to give information of NID number, Name of the voter, Phone number, Gender and Age. NID number and mobile number are uniquely validated so that duplicate data can't be occurred.

The screenshot displays the 'Meeting Tracker' web application interface. On the left is a dark sidebar with a logo and a menu containing: Home Ward, Voter Management (with a dropdown arrow), Voters, Upload Voters Info, Meeting Management, Attendance Management, Approved Project (with a dropdown arrow), Resolution Search (with a dropdown arrow), and Send SMS (with a dropdown arrow). The top header features a search bar labeled 'Search Here', a settings gear icon, a user profile picture, and the text 'ward' with a dropdown arrow. The main content area is titled 'Create Voters' and includes a blue button labeled 'List Voters'. Below the title, the location is specified: District: Bagerhat, Upazila: Bagerhat Sadar, Union Parishad: Baruepara, and Ward No: 1. The form contains five input fields: NID, Name, Phone, Gender, and Age. A blue 'Submit' button is positioned at the bottom of the form. A footer bar at the very bottom states: 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

Screenshot 4.4.3.2: Create List of Voter

## 4.4.4: Meeting Management

### 4.4.4.1 List of Meetings

After voter's data inserted, meeting will be initiated for respective ward. After inserting meeting information in ward they will be able to view list of meeting in their panel. They will be also able to modify and remove any respective meeting from the meeting list.

Meeting Tracker

Search Here

ward

**Meeting** [Add Meeting](#)

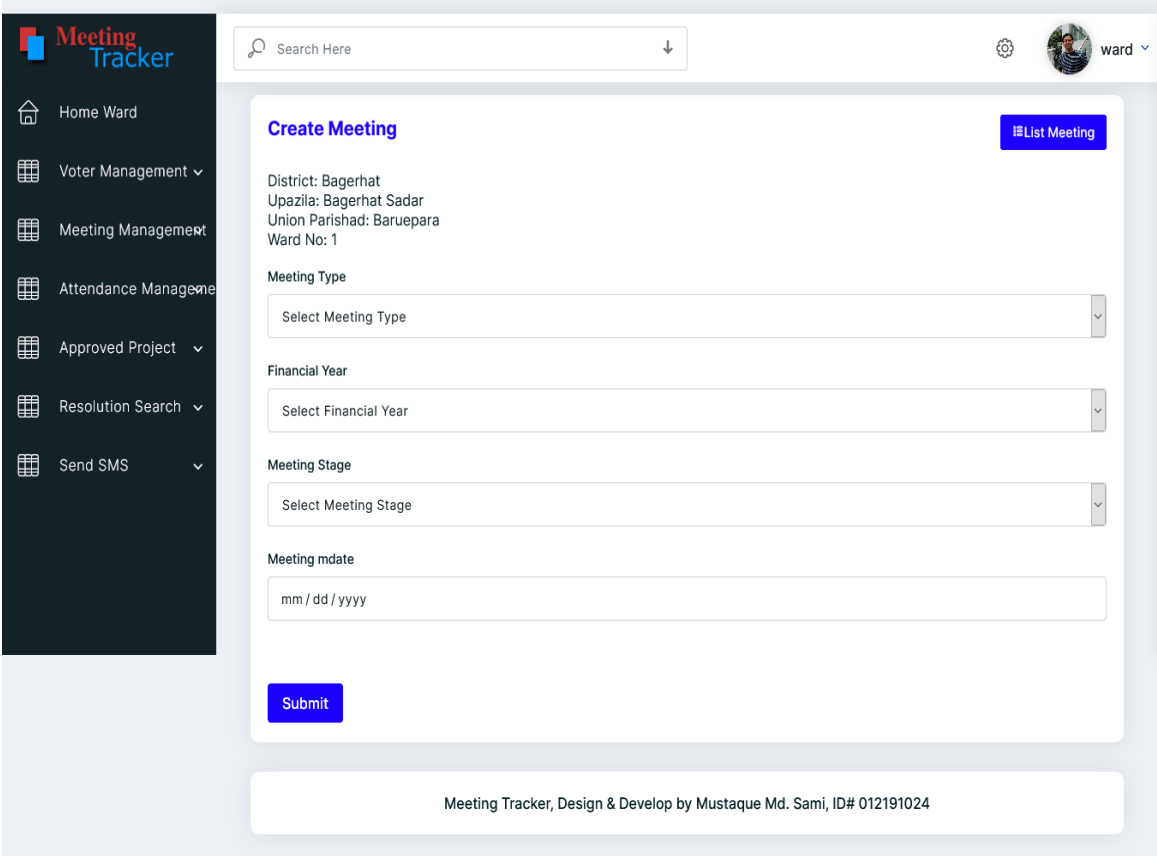
| Meeting Type | FY        | Stage | mdate      | Action                                                           |
|--------------|-----------|-------|------------|------------------------------------------------------------------|
| Ward Meeting | 2020-2021 | 1st   | 2021-03-12 | <a href="#">Edit</a> <a href="#">Delete</a> <a href="#">View</a> |

Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024

Screenshot 4.4.4.1: List of Meetings

#### 4.4.4.2 Create Meeting

Meeting will be created for initiating ward level meeting. In meeting creating they will have to insert data like Meeting Type, Financial Year, Meeting Stage and Meeting Date. After creating meeting information they will be able to take attendance of that meeting by selecting meeting type and financial year.



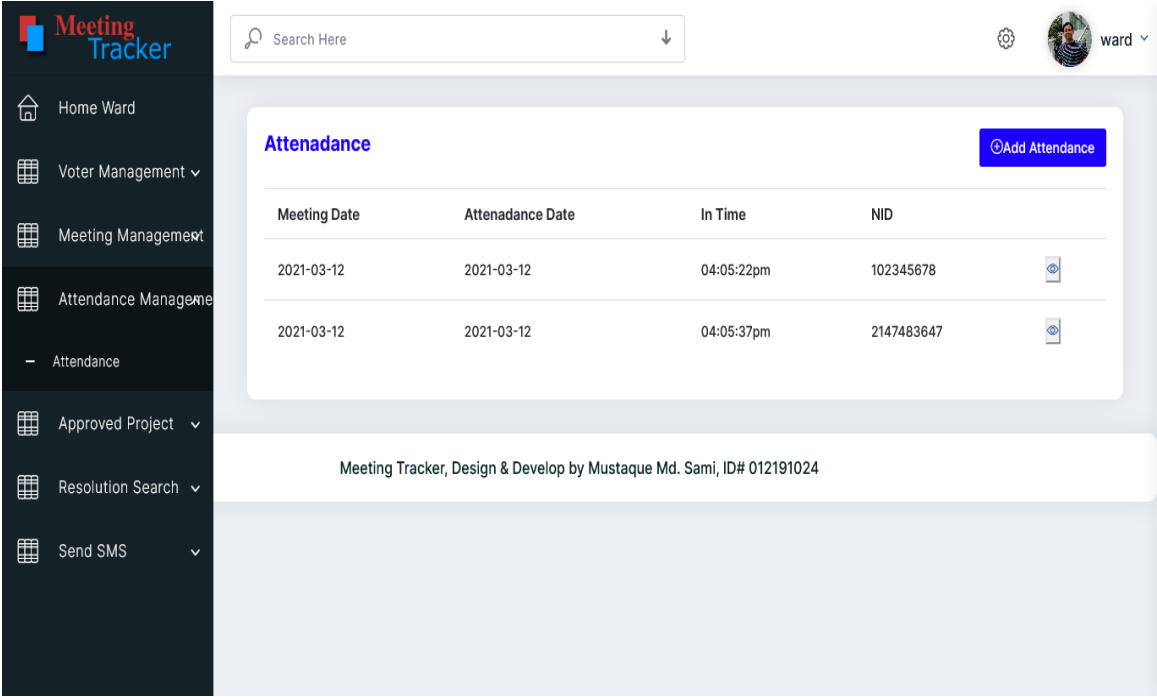
The screenshot displays the 'Create Meeting' interface of the Meeting Tracker application. On the left is a dark sidebar with navigation links: Home Ward, Voter Management, Meeting Management, Attendance Management, Approved Project, Resolution Search, and Send SMS. The top header includes a search bar, a settings icon, a user profile icon, and a 'ward' dropdown. The main content area is titled 'Create Meeting' and contains several form fields: 'District: Bagerhat', 'Upazila: Bagerhat Sadar', 'Union Parishad: Baruepara', and 'Ward No: 1'. Below these are dropdown menus for 'Meeting Type', 'Financial Year', and 'Meeting Stage', each with a 'Select' label. A date input field for 'Meeting mdate' is formatted as 'mm / dd / yyyy'. A blue 'Submit' button is at the bottom left of the form. A 'List Meeting' button is in the top right corner of the form area. At the bottom of the page, a footer states 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

Screenshot 4.4.4.2: Create Meeting

## 4.4.5: Attendance Management

### 4.4.5.1 List of Attendances

List of attendance views can be obtained after inserting attendance information in particular meeting. In list view we can see Meeting date, Attendance date, In Time and NID. We can also see details of which person is entered the meeting.



The screenshot displays the 'Meeting Tracker' application interface. On the left is a dark sidebar with a menu containing: Home Ward, Voter Management, Meeting Management, Attendance Management (selected), Attendance, Approved Project, Resolution Search, and Send SMS. The main content area has a top header with a search bar, a settings icon, a user profile icon labeled 'ward', and a blue 'Add Attendance' button. Below this is a table titled 'Attendance' with the following data:

| Meeting Date | Attendance Date | In Time    | NID        |
|--------------|-----------------|------------|------------|
| 2021-03-12   | 2021-03-12      | 04:05:22pm | 102345678  |
| 2021-03-12   | 2021-03-12      | 04:05:37pm | 2147483647 |

At the bottom of the main content area, a footer text reads: 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

Screenshot 4.4.5.1: List of Attendance

#### 4.4.5.2 Create Attendance

In create attendance system every voter must scan their NID to enter the meeting. If the NID information does not match with the system NID information they won't be able to enter the meeting. Information will be obtained Meeting Date, Attendance date, In Time.

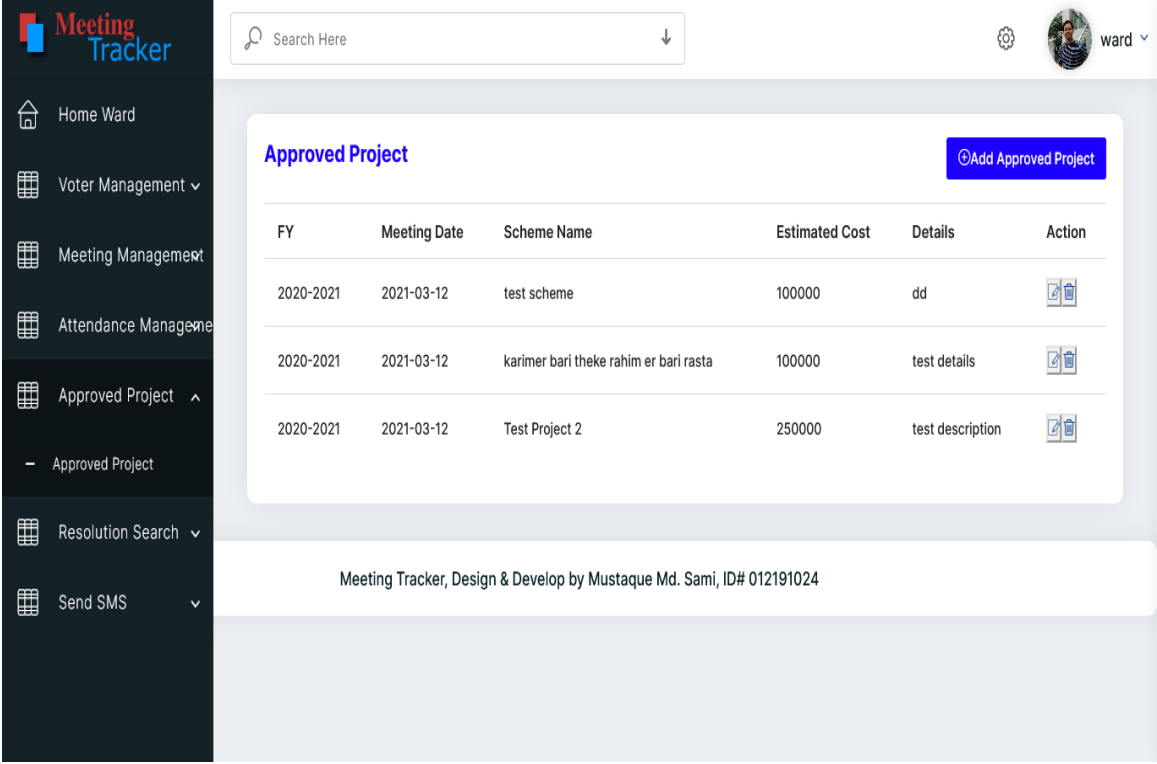
The screenshot displays the 'Meeting Tracker' web application interface. On the left is a dark sidebar with navigation links: Home Ward, Voter Management, Meeting Management, Attendance Management, Attendance (selected), Approved Project, Resolution Search, and Send SMS. The main content area features a 'Create Attendance' form with the following fields: Meeting Date (2021-03-12), Attendance Date (2021-03-27), In Time (12:49:10am), and a 'Scan / Entry NID' field. A 'List Attendance' button is in the top right of the form. The footer of the application states: 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

Screenshot 4.4.5.2: Create Attendance

## 4.4.6: Approved Project Management

### 4.4.6.1 List of Approved Project

In this module we can get financial year wise information of approved project in the meeting.



The screenshot displays the 'Meeting Tracker' application interface. On the left is a dark sidebar with navigation options: Home Ward, Voter Management, Meeting Management, Attendance Management, Approved Project (selected), Resolution Search, and Send SMS. The main content area has a search bar at the top and a user profile 'ward' on the right. Below the search bar is a table titled 'Approved Project' with a blue 'Add Approved Project' button. The table lists three projects with columns for FY, Meeting Date, Scheme Name, Estimated Cost, Details, and Action. At the bottom, a footer states 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

| FY        | Meeting Date | Scheme Name                            | Estimated Cost | Details          | Action                                                                                                                                                                      |
|-----------|--------------|----------------------------------------|----------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2020-2021 | 2021-03-12   | test scheme                            | 100000         | dd               |       |
| 2020-2021 | 2021-03-12   | karimer bari theke rahim er bari rasta | 100000         | test details     |       |
| 2020-2021 | 2021-03-12   | Test Project 2                         | 250000         | test description |   |

Screenshot 4.4.6.1: List of Approved Project Management

#### 4.4.6.2 Create Approved Project

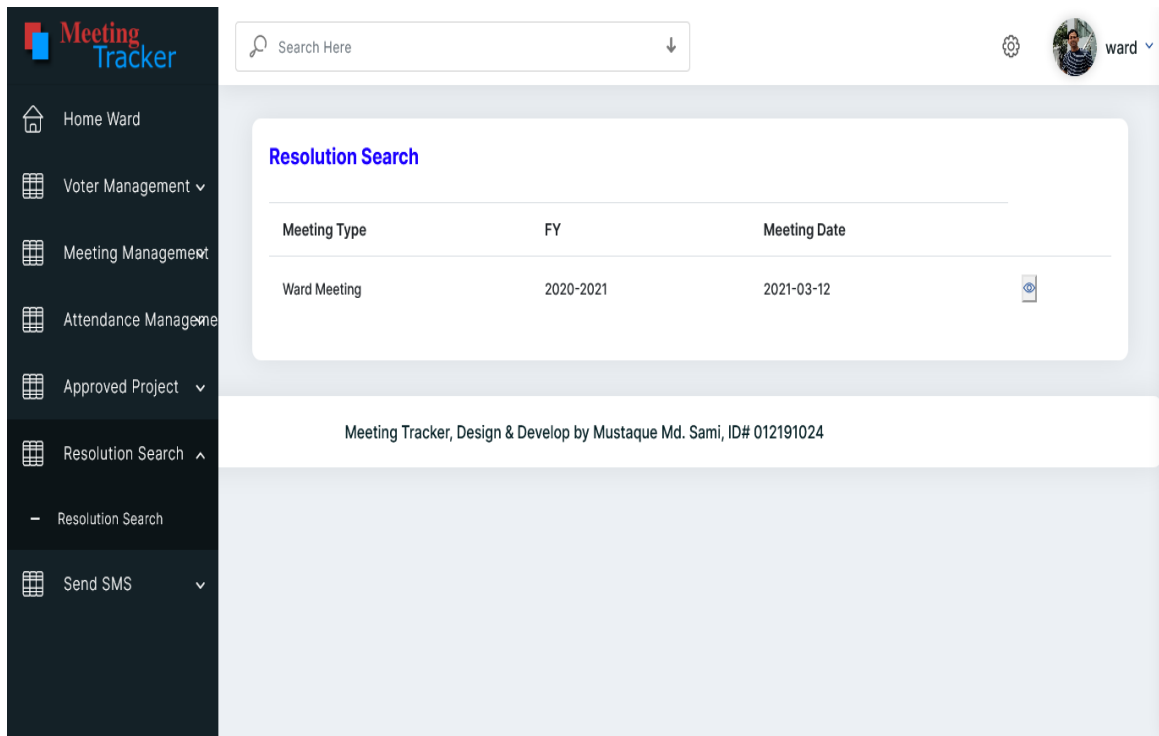
In this module we will insert approved project information in the meeting. Here we can get information of project name, estimated cost and short description of the project.

The screenshot displays the 'Meeting Tracker' web application interface. On the left is a dark sidebar with navigation links: Home Ward, Voter Management, Meeting Management, Attendance Management, Approved Project (selected), Resolution Search, and Send SMS. The main content area is titled 'Create Approved Project' and includes a search bar at the top right. The form contains several dropdown menus: District (Bagerhat), Upazila (Bagerhat Sadar), Union Parishad (Baruepara), Ward No (1), and Financial Year (Select Financial Year). It also has text input fields for Meeting Date (2021-03-12), Scheme Name, Estimated Cost, and a large text area for Short Description. A blue 'Submit' button is at the bottom left of the form. A footer bar at the bottom of the page reads 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

Screenshot 4.4.6.2: Create Approved Project

### 4.4.7: Resolution Search

Meeting resolution is essential for every meeting. Here we can have digital meeting resolution and we can search it here.



Screenshot 4.4.7: Resolution Search



#### 4.4.8: Send SMS

In this send SMS module we will be able to send SMS with meeting time, meeting date to registered voter list which we can get from Voter Management. It will help to create awareness to people to come in meeting.

The screenshot displays the 'Meeting Tracker' web application interface. On the left is a dark sidebar with a menu containing: Home Ward, Voter Management, Meeting Management, Attendance Management, Approved Project, Resolution Search, Send SMS (highlighted), and a sub-item Send SMS. The top header includes a search bar, a settings icon, a user profile icon labeled 'ward', and a dropdown arrow. The main content area is titled 'Send SMS' and features a 'List Sent Message' button. Below the title is a 'Compose message' section with a 'Recipient:' label and a text input field, and a 'Message text:...' label with a larger text area. A 'Send' button is positioned at the bottom of the message text area. At the very bottom of the page, a footer bar contains the text: 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

Screenshot 4.4.8: Send SMS

#### 4.4.9: List of User

Administrative user only see the whole system user. They will also able to create, edit and delete any user.

The screenshot displays the 'Meeting Tracker' application interface. On the left is a dark sidebar menu with the following items: Home admin, Voter Management, Meeting Management, Attendance Management, Approved Project, Access Management, Users (selected), Organogram, Resolution Search, and Settings. The main content area has a search bar at the top with the text 'Search Here'. Below the search bar is a section titled 'Users' with an 'Add User' button in the top right corner. The 'Users' section contains a table with the following data:

| ID       | Name                | Designation    | Phone       | District  | Action                                                                                                                                                                      |
|----------|---------------------|----------------|-------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin    | sami                | Admin          | 01713442070 | Bagerhat  |       |
| district | District User       | District       | 01713442071 | Dhaka     |       |
| upazila  | Upazila User        | Upazila        | 01713442072 | Feni      |       |
| union    | Union Parishad User | Union Parishad | 01713442073 | Bandarban |     |
| ward     | Name                | Ward           | 01713442074 | Bagerhat  |   |

At the bottom of the page, there is a footer text: 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

Screenshot 4.4.9: List of User

#### 4.4.10: Create User

Administrative user can create a new user in this system. Admin user also give role to that user so that newly created user can only perform what admin permit to access.

The screenshot displays the 'Create User' interface within the Meeting Tracker application. On the left is a dark sidebar with navigation icons and labels: Home admin, Voter Management, Meeting Management, Attendance Management, Approved Project, Access Management, Resolution Search, and Settings. The top header features a search bar, a settings gear icon, and a user profile dropdown showing 'admin'. The main content area is titled 'Create User' and contains the following form fields:

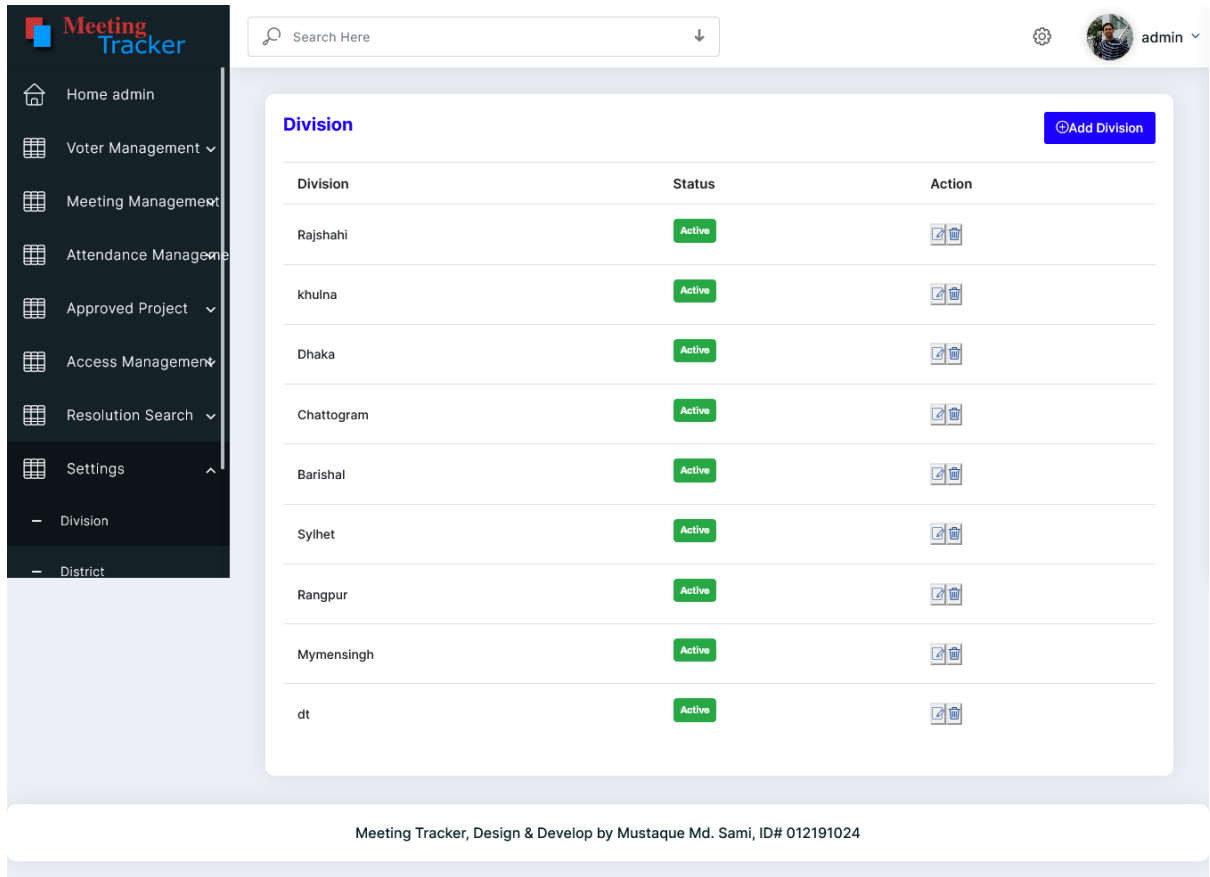
- ID: Text input field
- Password: Text input field
- Confirm Password: Text input field
- Name (English): Text input field
- Name (Bangla): Text input field
- Email: Text input field
- Phone: Text input field
- Blood Group: Dropdown menu with 'Select Blood Group'
- Designation: Dropdown menu with 'Select Designation'
- District: Dropdown menu with 'Select District'
- Upazila: Dropdown menu with 'Select Upazila'
- Union Parishad: Dropdown menu with 'Select Union Parishad'
- Ward No: Dropdown menu with 'Select Ward No'
- User Permission: Dropdown menu with 'Select Permission'

A blue 'Submit' button is located at the bottom of the form. A 'Users List' button is visible in the top right corner of the form area. At the bottom of the page, a footer bar contains the text: 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

Screenshot 4.4.10: Create User

4.4.11: List of Division

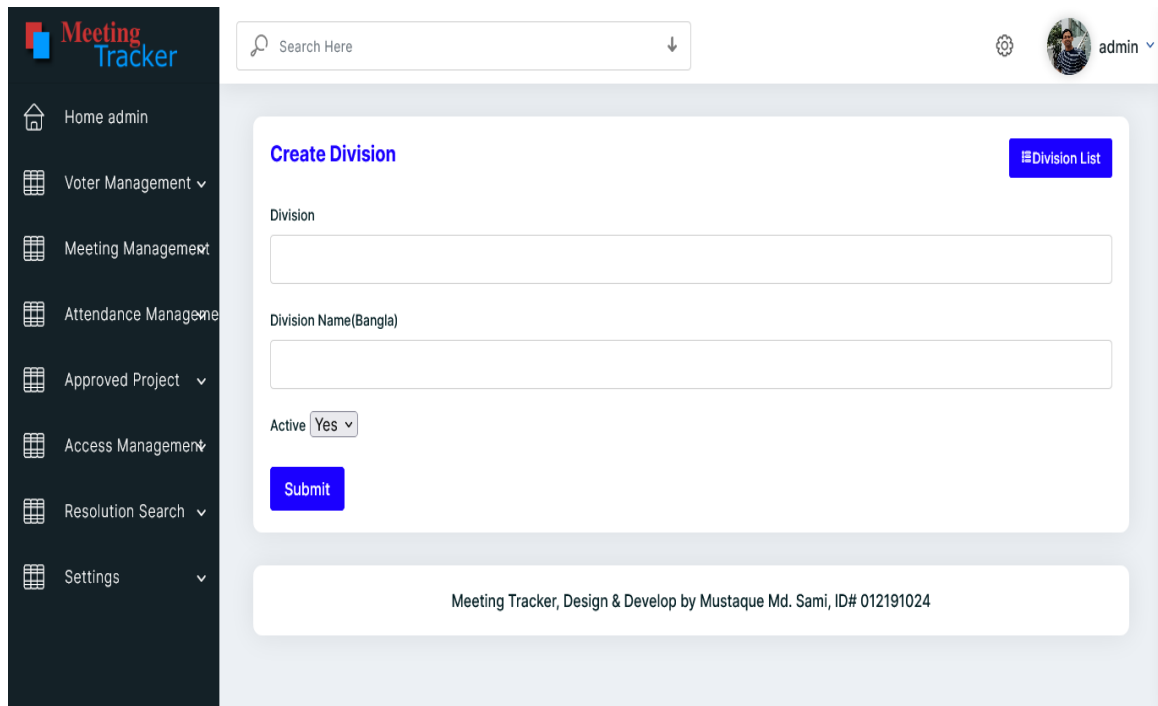
Division data is the reuseable data. In this system every aspect we need to have this dependency data so that we keep this data in table and reuse whenever we need to use.



Screenshot 4.4.11: List of Division

#### 4.4.12: Create Division

We can easily create any division data from the system by using create division creating form.



The screenshot displays the 'Create Division' form within the Meeting Tracker application. On the left is a dark sidebar with the 'Meeting Tracker' logo and a list of menu items: Home admin, Voter Management, Meeting Management, Attendance Management, Approved Project, Access Management, Resolution Search, and Settings. The top header includes a search bar, a settings icon, a user profile icon labeled 'admin', and a dropdown arrow. The main content area features the 'Create Division' title and a 'Division List' button. The form contains two text input fields: 'Division' and 'Division Name(Bangla)'. Below these is an 'Active' toggle set to 'Yes'. A blue 'Submit' button is positioned at the bottom of the form. A footer bar at the bottom of the page contains the text: 'Meeting Tracker, Design & Develop by Mustaque Md. Sami, ID# 012191024'.

Screenshot 4.4.12: Create Division

#### 4.4.13: List of District

Like division data we need also reusable district data for further use in the system. You can view district data, edit and delete district data.

The screenshot displays the 'Meeting Tracker' application interface. On the left is a dark sidebar with a menu containing 'Attendance Management', 'Approved Project', 'Access Management', 'Resolution Search', and 'Settings'. Under 'Settings', there are sub-items: 'Division', 'District', 'Upazila', and 'Union Parishad'. The 'District' item is currently selected. The main content area has a header with a search bar labeled 'Search Here' and a user profile 'admin'. Below the header, the title 'District' is shown next to a blue '+Add District' button. A table lists the districts with columns for 'Division', 'District', 'Status', and 'Action'.

| Division | District        | Status | Action                                                                                                                                                                      |
|----------|-----------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rajshahi | Bogura          | Active |       |
| Rajshahi | Joypurhat       | Active |       |
| Rajshahi | Naogaon         | Active |       |
| Rajshahi | Natore          | Active |     |
| Rajshahi | Chapainawabganj | Active |   |
| Rajshahi | Pabna           | Active |   |

Screenshot 4.4.13: List of District

#### 4.4.14: Create District

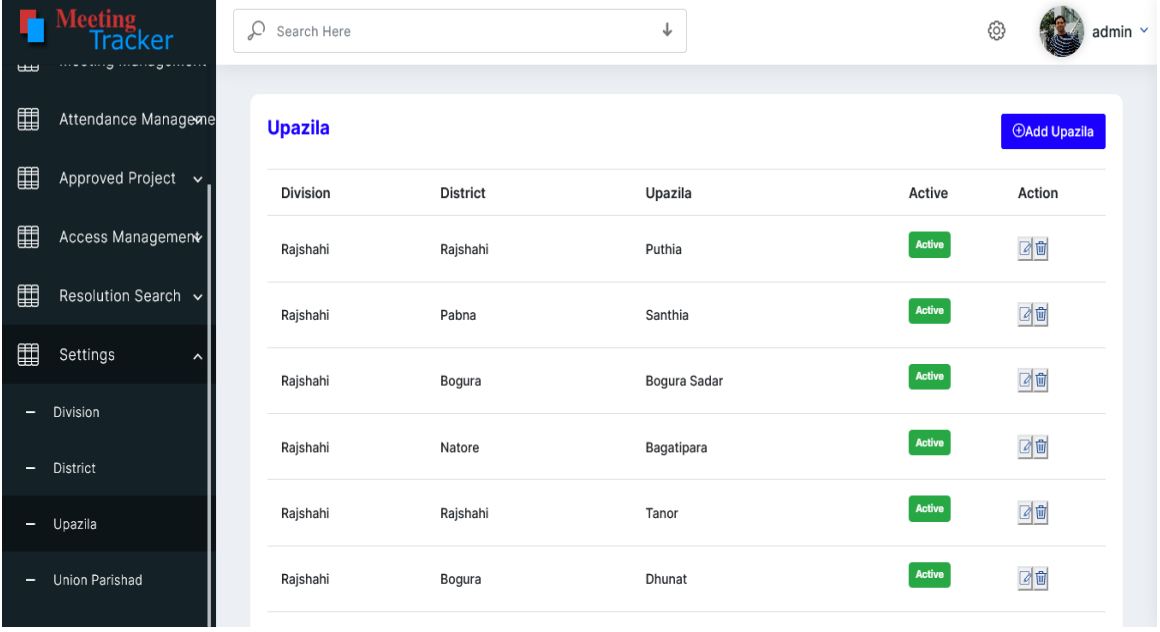
We can easily create any district data associate with division from the system by using create district form. Before creating district you have to select division first.

The screenshot displays the 'Create District' form within the Meeting Tracker application. On the left is a dark sidebar with the 'Meeting Tracker' logo and a list of menu items: Home admin, Voter Management, Meeting Management, Attendance Management, Approved Project, Access Management, Resolution Search, and Settings. The main content area has a top header with a search bar, a settings gear, and a user profile labeled 'admin'. The form itself is titled 'Create District' and contains several input fields: a 'Division' dropdown menu with a 'District List' button, a 'District' text input, and a 'District(Bangla)' text input. There is also an 'Active' toggle set to 'Yes' and a blue 'Submit' button at the bottom. A footer at the very bottom of the page reads 'Meeting Tracker Design & Developer by Mustaque Md. Sami ID# 012101024'.

Screenshot 4.4.14: Create District

#### 4.4.15: List of Upazila

Like division and district data we need also reusable upazila data for further use in the system. You can view upazila data, edit and delete upazila data.



The screenshot displays the 'Meeting Tracker' application interface. On the left is a dark sidebar with a menu containing 'Attendance Management', 'Approved Project', 'Access Management', 'Resolution Search', and 'Settings'. The 'Settings' menu is expanded, showing sub-options: 'Division', 'District', 'Upazila', and 'Union Parishad'. The 'Upazila' option is selected. The main content area has a header with a search bar and a user profile 'admin'. Below the header is a section titled 'Upazila' with an 'Add Upazila' button. A table lists the following data:

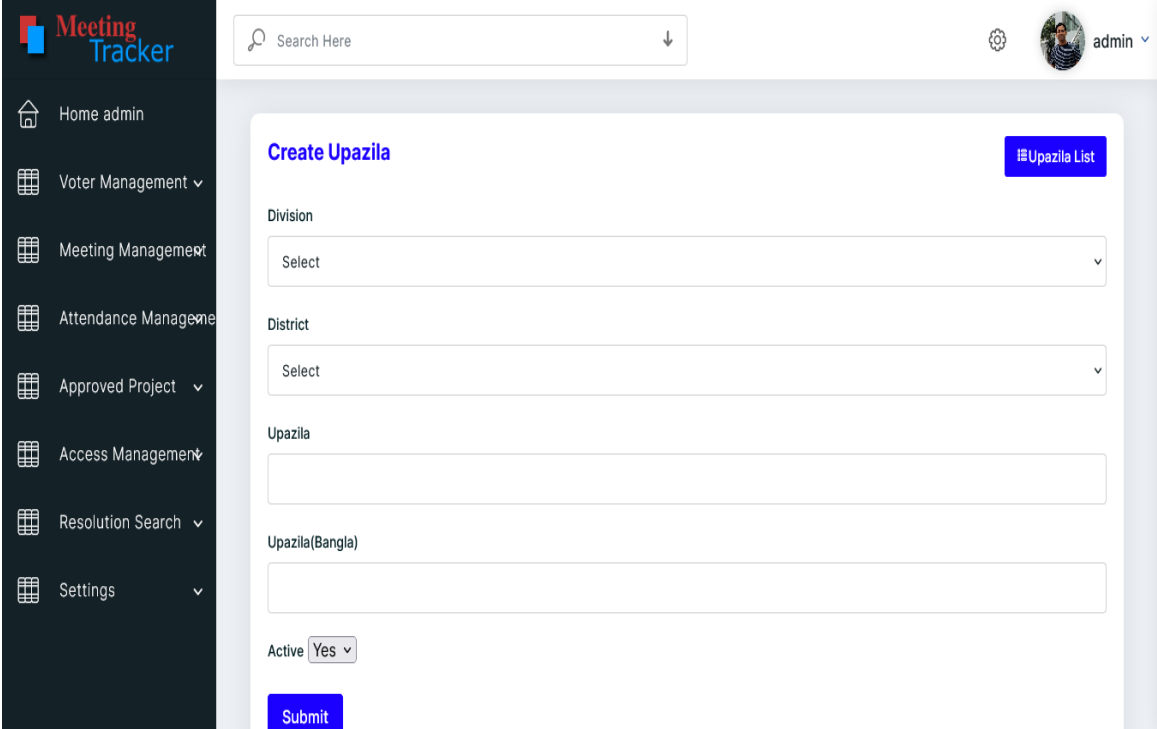
| Division | District | Upazila      | Active | Action                                                                                                                                                                      |
|----------|----------|--------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rajshahi | Rajshahi | Puthia       | Active |       |
| Rajshahi | Pabna    | Santhia      | Active |       |
| Rajshahi | Bogura   | Bogura Sadar | Active |       |
| Rajshahi | Natore   | Bagatipara   | Active |       |
| Rajshahi | Rajshahi | Tanor        | Active |   |
| Rajshahi | Bogura   | Dhunat       | Active |   |

Screenshot 4.4.15: List of Upazila



#### 4.4.16: Create Upazila

We can easily create any upazila data associate with division and district from the system by using create upazila form. Before creating upazila you have to select respective division and district data.



The screenshot displays the 'Create Upazila' form within the Meeting Tracker application. On the left is a dark sidebar with the 'Meeting Tracker' logo and a menu including 'Home admin', 'Voter Management', 'Meeting Management', 'Attendance Management', 'Approved Project', 'Access Management', 'Resolution Search', and 'Settings'. The top header features a search bar, a settings icon, and a user profile for 'admin'. The main form area is titled 'Create Upazila' and includes a 'Upazila List' button. It contains several input fields: 'Division' and 'District' are dropdown menus with 'Select' as the placeholder; 'Upazila' and 'Upazila(Bangla)' are text input fields. At the bottom, there is an 'Active' toggle set to 'Yes' and a 'Submit' button.

Screenshot 4.4.16: Create Upazila

#### 4.4.17: List of Union Parishad

Like division, district and upazila data we need also reusable union parishad data for further use in the system. You can view union parishad data, edit and delete union parishad data.

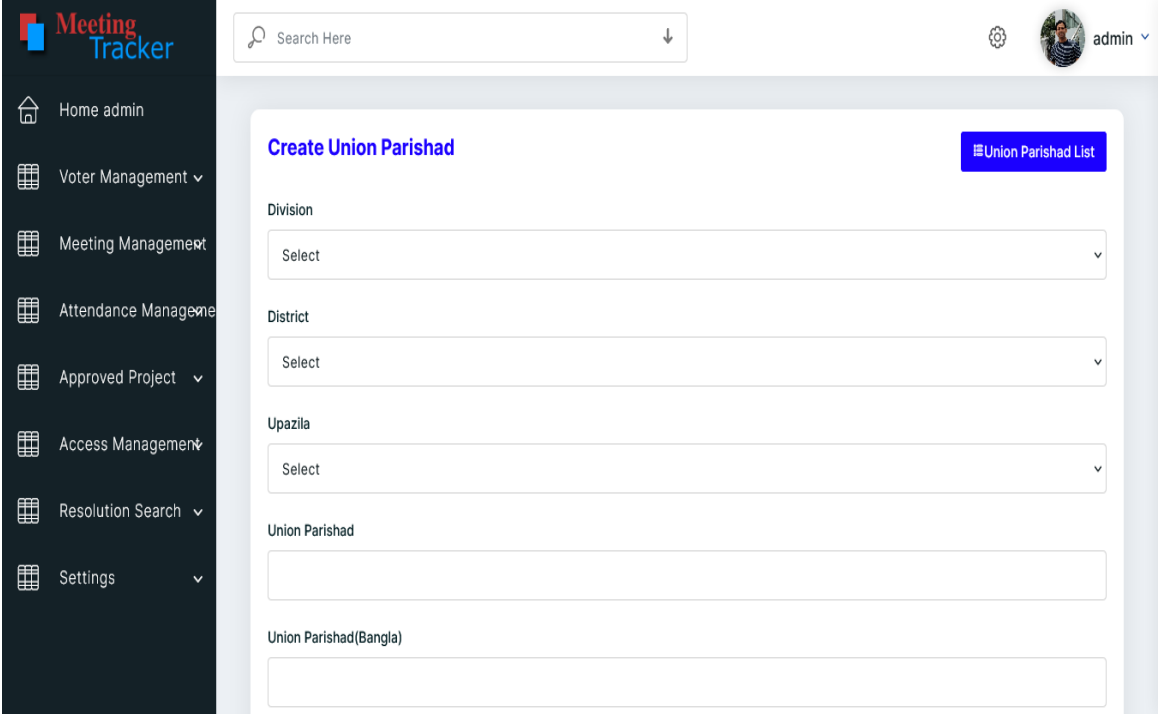
The screenshot displays the 'Meeting Tracker' application interface. On the left is a dark sidebar with a menu including 'Attendance Management', 'Approved Project', 'Access Management', 'Resolution Search', and 'Settings'. Under 'Settings', 'Union Parishad' is selected. The main content area has a header with a search bar, a settings icon, and a user profile labeled 'admin'. Below the header, the 'Union Parishad' section features a table with columns: Division, District, Upazila, Union Parishad, Active, and Action. A 'Create Union Parishad' button is in the top right of the table area. The table lists six entries, all with 'Active' status and edit/delete icons.

| Division | District  | Upazila      | Union Parishad | Active | Action                                                                                                                                                                      |
|----------|-----------|--------------|----------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rajshahi | Naogaon   | Mohadevpur   | Khajur         | Active |       |
| Rajshahi | Sirajgonj | Shahjadpur   | Garadaha       | Active |       |
| Rajshahi | Bogura    | kahaloo      | Birkedar       | Active |   |
| Rajshahi | Bogura    | Bogura Sadar | Shakhariya     | Active |   |
| Rajshahi | Natore    | Lalpur       | Iswardi        | Active |   |
| Rajshahi | Joypurhat | Akkelpur     | Tilokpur       | Active |   |

Screenshot 4.4.17: List of Union Parishad

#### 4.4.18: Create Union Parishad

We can easily create any union parishad data associate with division, district and upazila from the system by using create union parishad form. Before creating union parishad you have to select respective division, district and upazila data.



The screenshot displays the 'Meeting Tracker' web application interface. On the left is a dark sidebar with a menu containing: Home admin, Voter Management, Meeting Management, Attendance Management, Approved Project, Access Management, Resolution Search, and Settings. The main content area is titled 'Create Union Parishad' and includes a blue button labeled 'Union Parishad List'. The form contains several input fields: 'Division' (a dropdown menu with 'Select' as the placeholder), 'District' (a dropdown menu with 'Select' as the placeholder), 'Upazila' (a dropdown menu with 'Select' as the placeholder), 'Union Parishad' (a text input field), and 'Union Parishad(Bangla)' (a text input field). At the top of the main area, there is a search bar with the text 'Search Here' and a settings icon next to a user profile labeled 'admin'.

Screenshot 4.4.18: Create Union Parishad

## **Chapter 5**

### **Conclusion**

In case of implementation of any project, the voters of their ward are directly involved and express their needs in ward meetings. This huge number of meeting information and their resolution management was a big challenge. Now this type of problem will be solved through meeting tracking. Also the involvement of the people in the ward meeting and their needs will be recorded. As a result, the aspirations of the people are reflected and a place of accountability is created.

### **Future Directions**

Face recognition in meeting attendance system can be future directions of this project as we know face recognition is more secure and faster technology than any other attendance system. By this system a person does not need any action to conduct this task rather system will automatically capture identification. Face recognition is real time and especially will be very effective in this pandemic situation.

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