



**BANNARI AMMAN**  
**INSTITUTE OF TECHNOLOGY**  
An Autonomous Institution, Affiliated to Anna University,  
Approved by AICTE, Accredited by NAAC with 'A+' Grade

## **BANNARI AMMAN INSTITUTE OF TECHNOLOGY**

**An Autonomous Institution Affiliated to Anna University - Chennai, Accredited by NAAC with A+ Grade**

**Sathyamangalam - 638401 Erode District, Tamil Nadu, India**

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**Project ID: 23**

### **TECHNICAL COMPONENTS:**

<b>FRONT END</b>	<b>ANGULAR(JS FRAMEWORK)</b>
<b>BACK END</b>	<b>EXPRESS.JS(WEB FRAMEWORK FOR NODE.Js)</b>  <b>Node.js(JAVASCRIPT RUNTIME ENVIRONMENT)</b>
<b>DATABASE</b>	<b>MongoDB(NOSQL DATABASE)</b>
<b>API</b>	<b>REST FULL API/GRAPHQL APIs</b>

## **PROJECT-FLOW:**

**Purpose:** Develop a centralized mailing system to efficiently manage communication about student schedules and activities, addressing issues of schedule conflicts and communication inconsistencies.

**Scope:** The system will feature:

- **User Authentication:** Secure login using Google OAuth.
- **Mailer Request Form:** Users can input mail content, specify scheduling times, categories, and recipients.
- **Conflict Checks:** Automatic detection of scheduling conflicts with options for adjustment.
- **Dynamic Dashboard:** Real-time viewing and management of schedules.
- **In-App Notifications:** A notification bell or pop-up within the application to alert users of new messages or changes without leaving the current page.
- **Integration with Existing Email Systems:** To ensure scheduled and conflict-free messaging.

**Business Context:** The centralized mailing system is designed to improve communication clarity and timeliness across BIT, enhancing organizational efficiency by minimizing scheduling conflicts. Key stakeholders include students, faculty, administrative staff, and the IT department.

### **Considerations:**

- All users have active Google accounts for authentication.
- Users have regular access to internet-enabled devices.

### **Dependencies:**

- Integration with Google OAuth for secure user authentication.
- Consistent performance and availability of the existing email server.

### **User Personas:**

- **Student:** Needs an up-to-date schedule to plan activities effectively.
- **Faculty:** Requires the ability to send out schedule updates and notices efficiently.

- **Admin Staff:** Manages system operations, resolves conflicts, and approves mail requests.

## Functional Requirements:

- **User Authentication:** Implement secure login using Google OAuth.
- **Mailer Request Form:** Users input mail content, scheduling time, category, and recipients.
- **Conflict Resolution:** Automatic detection of scheduling conflicts with options for adjustment.
- **Dynamic Dashboard:** Real-time schedule viewing and interaction.
- **Priority Algorithm:** Automated prioritization of communications based on rules.
- **In-App Notifications:** Real-time alerts via a notification bell or pop-up feature for new messages or changes.

## Technical Components:

- **Frontend:** Angular (JS Framework) for a responsive user interface.
- **Backend:** Express.js (Web Framework for Node.js) for server-side logic.
- **Runtime:** Node.js (JavaScript Runtime Environment) for executing server-side code.
- **Database:** MongoDB (NoSQL Database) for storing user data and schedule information.
- **API:** RESTful API/GraphQL APIs for data interaction and integration.

## FUNCTIONAL REQUIREMENTS:

Develop a college timetable system using Angular for a dynamic dashboard, Google OAuth authentication, and in-app notifications. Implement automated scheduling and conflict detection in Express.js with Node.js for scalability and real-time updates. Use MongoDB for data management, ensuring role-based access and mobile-friendly design. Integrate with existing systems.

## FLOW CHART:

