# Software Design Specification

## NUAPP

An application to ease access to Gate-pass, library, timetable and attendance services

# CONTENTS

# Introduction

## Purpose of this document

This Software Design Specification (SDS) document will focus on specifying a high-level view of the architecture of our system, and on the interaction between the user and the system. This document's purpose is to provide a high-level design framework around which to build NU APP . It also provides a list of requirements against which to test the final project and determine whether we were able to successfully implement the system according to design.

## Scope of the development project

The purpose of the project is to integrate the three services that are Gate-pass, Library and the Nucleus of NIIT University in one place so that the user can access them more easily and conveniently. We are building a mobile application to help the students of NIIT University so that:

- The students should be able to view their current timetable with ease.
- Should be able to apply gate-pass through a mobile application itself.
- It must notify the student and concerned parent / guardian about the same.
- Should be able to view their issued books, to be notified about the reissue date.
- Student should be able to search for specific book availability in the library.

## Definitions, acronyms and abbreviations

| Words | Meaning / Definition |
|---|---|
| HTTP | Hyper Text Transfer Protocol |
| FTP | File Transfer Protocol |
| CRUD | Database basic operations: Create, Read, Update and Delete. |
| CLI | Short for Command Line Interface |
| Cordova | A platform which eases the process of hybyrid mobile application development by providing easy access to mobile APIs, and enhances the mobile development using HTML, CSS and JS. |
| KOHA database | The RDBMS used in our library systems. |
| HTML | Hyper Text Markup Language, used to write the web pages. Or in our case could be used to write App's pages. |
| CSS | Cascaded Style Sheets, used to design or position the HTML elements. Very important to give style to our app. |
| JS | Java Script Used to add interactivity to web pages, used to reduce server load as well. |
| Firebase | Firebase is a google product which provides easy access and usage of APIs that help in authentication, notification and storage. |

## References

Not Applicable

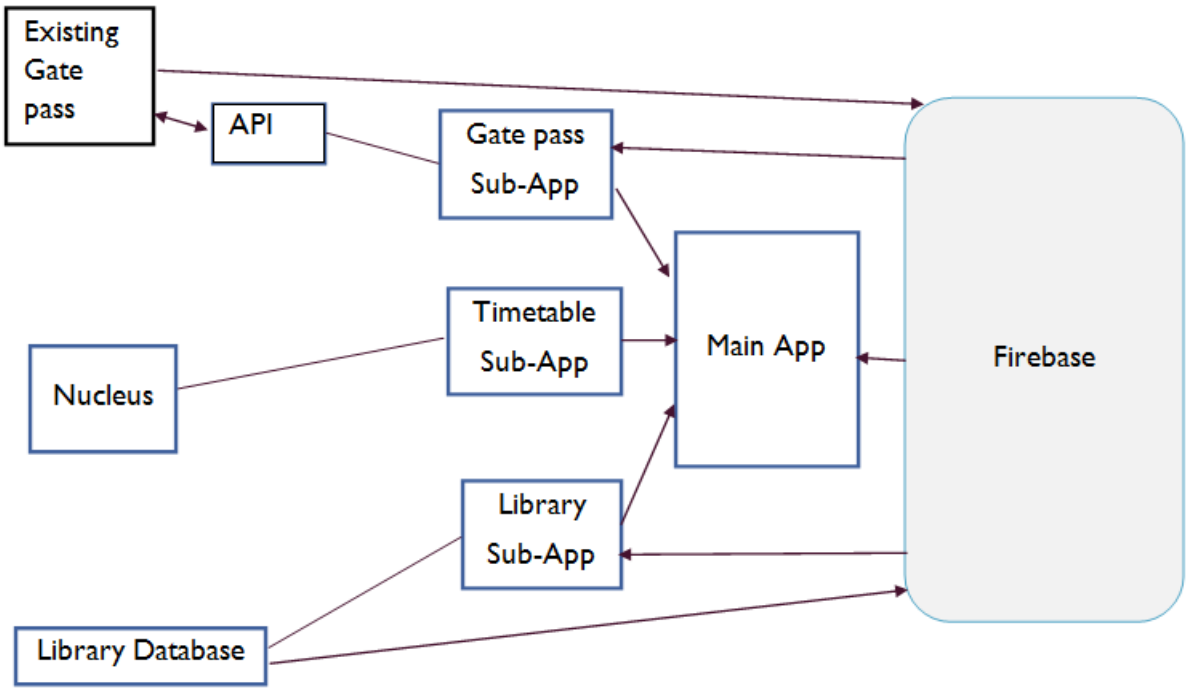
## Overview of the document

# System Architecture Description

## Overview of modules / components

Our system is designed with the intention of making the application reliable,usable and robust.
This application will fit into the daily lives of the recommended users with great ease.
This application in future may be updated as per the changes committed in it’s parent application.
There are five basic, logical components of the system: the Database Engine, Cloud service, the Server Application, and the Client Applications,Framework.

## Structure and relationships




## Database Engine

Hosts the backend database which is used for central data storage and retrieval.
The DB hosted in NIIT University server.

## Frameworks

- Ionic helps web developers build great mobile apps and Progressive Web Apps in a way that felt just like building websites. That means Ionic focus on taking the standard HTML, CSS, and JavaScript you'd use to build a website, and help you turn it into mobile running application.

- Apps work across native and web environments, which helps to wield the true powers of the underlying native SDKs and device features.

- Angular reuse the code and abilities to build apps for any deployment target i.e, web, mobile web, native mobile and native desktop.

### Cloud Services

- A **cloud service** is any resource that is provided over the Internet. The most common **cloud service** resources are Software as a **Service** (SaaS), Platform as a **Service** (PaaS) and Infrastructure as a **Service** (IaaS)
- FCM, can notify a client app that new email or other data is available to sync. FCM can send notification messages to drive user engagement and retention .For use cases such as instant messaging, a message can transfer a payload of up to 4KB to a client app.

### Server Application

- Implemented in .NET
- Provides methods and procedures that can be invoked remotely by a client application via API calls.
    - Retrieve project data.
    - Update project data.
    - Generate reports.

#### Client Applications

- Implemented in HTML5, SASS, JS, Anuglar-2, Ionic-2.
- Contains all presentation logic.
- Interacts exclusively with the user.
- Communicates with the server application through API's.

# Detailed Description Of Components

# Component template description

Following are the structures and relationships between various modules:

# Class Diagram: