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**Student Bus Pass System with NFC**  
**Supplementary Specification**

**Version 1.0**

Student Bus Pass System with NFC	Version: 1.0
Supplementary Specification	Date: 21.03.2018
Project_SupplementarySpecification	

## Revision History

Date	Version	Description	Author
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## Supplementary Specification

### 1. Introduction

In this document we specify and detail the non-functional aspects of the project. These aspects are crucial to the system being functional and useful. Furthermore, we go into more detail regarding constraints, ranging from hardware requirements to purchased components.

### 2. Non-functional Requirements

#### 2.1 Availability

The system must be readily available for all users at any moment, provided they have an internet connection. The whole point of this application is that it should improve the current situation, therefore, it is imperative to not have to go and wait in queues and have all the information on the phone.

#### 2.2 Scalability

So far, the system is thought only for students, however, in the city of Cluj-Napoca, they are not the only ones who receive free bus passes. Other categories of citizens would benefit from such an application, including pensioners and school students. Therefore, the system must be designed in such a way that if the need would arise to add a new category of people, there are no major modifications needed.

#### 2.3 Security

Users should not be able to abuse the system and gain privileges, such as gain access to more than the allocated bus lines or share their bus pass among friends.

#### 2.4 Response Time

In the case of the ticket inspectors, a system which takes a minute to verify for just one bus passenger if the pass is valid is not viable in the real world. When the bus is full, the ticket inspector should be able to check all the passenger's tickets before the bus reaches the next stop.

#### 2.5 Usability

The system should not be difficult to use since it may be someday expanded and used for elders or for small children.

### 3. Design Constraints

This application does come with some constraints, mainly because it will be deployed on an Android phone. The programming language used there is Java, and the user may need a specific version of Android or above to use the app. It will also rely on the phone's built in function of writing NFC tags, and this will also imply buying the tags.