

#### INTRODUCTION

#### Title of Project:

Institute based shuttle management system (IBTROS)

#### Team Name:

Speedy

## PROJECT

#### Problem Statement (With Problem ID):

Smart Public Transportation and Commuting Solutions (HWPS-Auto).

The below listed are aimed to be solved by IBTROS smart transportation solution.

- 1. Slowness in queing for public transport/shuttle would be solved by rapid RFID payment and authenication.
- 2. Funding Constaints [1]. Lack of funds would be solved by smart payment system.
- 3. Underutilization of shuttles and vehicles. Some public transportation are not integrated into the IoT system and this would be solved by IBTROS system in general.

## SOLUTION OVERVIEW

The proposed solution is to create an Internet of Things (IoT) system designed for enhancing public transportation, integrating real-time tracking, payment solutions, and passenger information to elevate the quality of commuting experiences. The proposed system allows shuttles to accessed easily by a community using Telegram and IBTROS card (RFID enabled cards) for authentication payment system, real-time tracking and passenger information storage.

Unique location routes is been assigned to different drivers. Students and workers can for a cheap price use their IBTROS cards (RFID card) to use these unique vehicles for transportation to there destination.

## FEATURES

- Telegram would be used because it is a chat software with over 700 million globally users [2] and used in varous institutions globally. This would be used for inputing of RFID codes for authentication, money purchase, real-time tracking and passenger information.
- Authentication and payment would be made by the RFID system using the cards.
- Money would be made for IBTROS through charges incured upon drivers.
- Service would be sustained by offering ride for cheaper prices to customers and better shuttle systems to both customer and drivers.
- By usage of Azure technologies and other cloud platform for data storage, IBTROS can get institutions around the world to get a quick solution to storing large amount of their data.
- IBTROS will be partnering with existing shuttle provider comanies for improved transportation system.

#### HARDWARE DESIGN

#### RFID authentication system circuit diagram

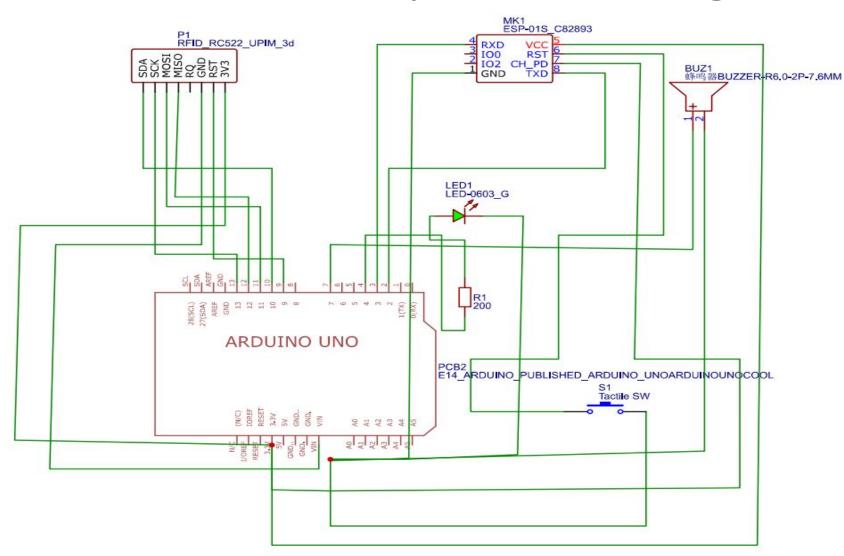


Fig: 1.0 IBTROS hardware system.

#### RFID system.

- Arduino Uno: For controlling the system.
- Esp8266esp01: For communication between the server and arduino uno.
- RFID reader, tags and cards, buzzer and LED: For authentication.
- Jumper wires: For connecting circuits together.

The diagram above is the RFID system make up. It gives a buzz sound for invalid user and a green light for valid users.

## SOFTWARE INTEGRATION

Software is integrated into the hardware becuase a user must have an account with telegram software in order to register for IBTROS and make bookings of ride as well as real-time tracking, storage of user information for security and also entering of RFID number which would be authenticated at the drivers side with a card to the RFID reader. Further more, arduino sketches are needed to programe the microcontroller and also cloud storage coding and python is used for server side programming.

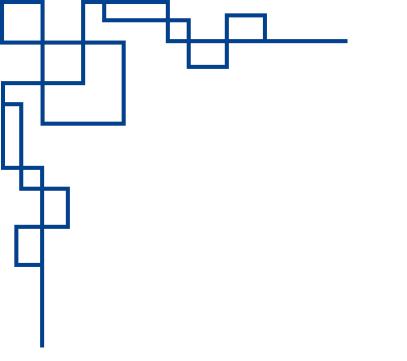
#### TECHNICAL DETAILS

Below are the technical specigications of the IBTROS system.

- 1. Telegram software (For users to register).
- 2. myQLite (For database).
- 3. Azure (For cloud database).
- 4. RFID Tags and readers (For payment and authentication).
- 5. Arduino Uno Integrated development Environment (IDE) (for coding).
- 6. Arduino Uno(For controlling the IBTROS system).
- 7. Python Programming Language (For server, database and other programming purpose).

## REFERENCES

- [1] https://stnonline.com/partner-updates/the-5-biggest-challenges-in-school-transportation-today/
- [2] https://telegram.org/blog/700-million-and-premium



# Thank You!