**Assumption Made in the project**

1. All team members have or can acquire easily the skills necessary to build the system.
2. We have all the necessary hardware and software tools
3. The working space is available 24/7
4. Policies and regulation of the Ethiopian government allows such system to be implemented
5. Guidance and supervision is provided from Computer Science and Engineering department of ASTU research lab
6. The system will only be executed inside the scope

**Background of the project**

Transport has evolved in history, following a wide range of drivers, which changed how, how much, when, and why people moved and transported goods between places. Mobility demand has always been driven by the need to access opportunities, related to work, services, shopping or leisure, depending on the specific historical and cultural context.

Transportation has been a country’s scale of civilization for centuries and will continue to be one for the years to come. People have moved from the simple cattle transportation to the sophisticated airplane and jets.

Digitizing the interaction of the passengers with the transportation system they chose is becoming the new norm. However, As Africans we are far behind and will need to work on our digitizing speed to catch up with the rest of the world.

The progress of global urbanization, especially in developing countries, is leading to an increased need in digitized and urban-metro transport solutions. As a result, automatic payment system for transportation has become a priority for public transport in large and medium-sized cities and generated large demand in other developed countries.

**Objective of the project**

The main objectives of this project are to prototype an automatic payment system through rechargeable cards or QR code, real-time route measurement with user trend analysis, and lastly, tariff and tax enforcement mechanism. Although these objectives might not seem to address the existing problems of the public transport system, they are the first step and lay the groundwork for future solutions that will be more sophisticated and utilize this system’s groundwork.

**Statement of the problem**

This outstanding capacity of the project aims to address various problems such as physical payment, tariff control, route allocation difficulties and mainly, it improves the traditional payment systems used in the public transport context.

Another outstanding property consists of the reduction of the operation costs thanks to

two factors: the use of local communication infrastructures and the use of general

purpose devices, avoiding devices based on proprietary technology. Finally, we have

based our model on the ubiquitous paradigm, to achieve the initial objectives

of the system; specifically, regarding flexibility and scalability. As a final consequence

we can affirm that this paradigm provides techniques and ideas which can improve

the traditional payment systems.

**Task and schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Due | Activities | Person in charge of overseeing operation |
| Documentation |  |  |  |
| Chapter 1 | March 18 | Requirement gathering,  Market research, Literature review | Yohanes and Tihitena |
| Chapter 2 & 3 | April 9 |  | Tigist |
| Chapter 4 & 5 | April 30 |  | Bemnet and Nebiyu |
| Final Documentation | May 5 | Revision | Yohanes and Tihitena |
| Prototype |  |  |  |
| Architecture Design |  |  | Bemnet and Nebiyu |
| Front-End Design and development |  |  | Tihitena |
| Back-End development |  |  | Nebiyu |
| IOT design and development |  |  | Bemnet |
| API development |  |  | Yohanes |
| Integration |  |  | Tigist |
| Deployment |  |  | Yohanes |
| Defence |  |  |  |
| Rehearsal |  |  |  |
| Defence |  |  |  |