Project Proposal

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Project Title: A Distributed Long Distance Ridesharing system

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0.1 Declaration

This project is my original work and to the best of my knowledge, this work has not been submitted for any other award in any University.

Signature: .....

Date: .....

Maluki Muthusi Maluki
P15/81741/2017

This project report has been submitted in partial fulfillment of the requirements of the BSc in Computer Science of the University of Nairobi with my approval as the University supervisor.

Signature: .....

Date: .....

PROF AGNES NDUKU WAUSI

0.2 Acknowledgement

I would like to thank my Supervisor Prof Agnes Nduku Weusi, for her support and guidance during the research and implementation of this project.

0.3 Abstract

This project aims to research and implement a long distance ridesharing system that connects drivers and passengers travelling to the same destination locations. Ridesharing is an interesting solution to some social problems like energy consumption, road congestion, quality travelling services and others. [3]

Ridesharing systems have been widely implemented and used in US and Europe since WW II. There are a lot of lessons that the Kenyan market can borrow from them. There has been a lot of innovation caused by 'ride sharing', the like of Uber and lyft, which follow a relative different business model to ridesharing which is based on efficient service and profit only.

There is a gab for a social entrepreneurs to offer quality commuting services. Some of the existing players in this sector have extended their services from short distance rides to long distance, due to the demand for such services.

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0.7 Introduction

Ridesharing is also known as liftsharing or car sharing in the UK@. This is different from the terms 'carsharing' in North America or 'car clubs' in the UK, which refer to short term auto use of a car from a fleet of cars, that are hourly shared by passengers, [4].

Ridesharing is the sharing of a cars journey so that one person drives, preventing the need for the other people to drive themselves to the location. The driver and the passenger are travelling towards the same direction. [1]. When payment is involved it is not for profitable reasons but to enable to cover the cost and services for the journey.

There has been a lot of interest in the ridesharing services in the recent years. This is because of the use of technology and easy access to internet services. Many people would prefer to travel on a private car than the public vehicles.

Ridesharing is seen as a solution to reducing congestion, offering quality services to people, and reducing energy consumption [3]. Governments have put in place policies to encourage ridesharing services.

0.7.1 Background

Carsharing began in the US during the World War II, [2]. The government encouraged carsharing to save rubber and fuel resources to be used in the war effort. Workers were incouraged to use the same car to and from work. The system in place was notice board based.

After the war carpooling services declined. The services later emerged during the 1970s due to the oil crisis. During this time corporates established internet notice boards and telephone-based computerized ridematching.

In the recent years there has been an increased interest in ridesharing services. These are built on internet and GPS-smartphones. These services have transformed the industry. They have put innovation into the transit services.

It is estimated that in the next decade there will be a greater intergration of services, technology and policy support for ridesharing, [1]. This is due to concerns for energy, congestion, climate change and dependency on oil.

0.7.2 Problem Statement

Going on a long distance journey is difficult in Kenya if you do not own a car. The public means of transport are inconvenient and unreliable. During holidays,

most people are stranded as the prices are hicked, as the demands exceeds the supply. Apart from the Matatus most people prefer to hire cars. It is expensive because they end up hiring the car for the days they will be away.

This is a big problem to the youths since most of them do not own cars and cannot afford to hire cars. The price of fuel has been increasing making transportation generally expensive for most people.

There is a need to connect people who are willing to share their cars with passengers. Currently private car drivers fear driving to the bus stations and pick passengers because they will spend a lot of time because of congestion at bus stations. Also only authorized vehicles are allowed to pick passengers at the bus stations.

Passengers have a need to access private cars that are travelling from and to their destination. They need this information earlier so that they can prepare and plan their journey well.

0.7.3 Objectives

Research Objectives

1. Review trends in ridesharing systems
2. Findout uses cases for ridesharing systems
3. Review on the adaptation of ridesharing systems

System Development Objectives

Develop a distributed system that will help solve this problem:-

1. Connect Drivers and Passengers using the system
2. Onboard a driver owner to offer services through the system
3. Drivers to post about their trips and accept passenger requests
4. Drivers to set their fare prices
5. Passengers to view available rides
6. Passengers to send requests for rides

0.7.4 Justification

Connecting drivers and passengers through a ridesharing system will help more people to travel in Kenya. Passengers will travel with convenience hence traveling more frequently. This will help in the growth of the economy especially when they travel from cities to the rural areas.

0.7.5 Scope

The proposed system will focus on mainly connecting the passengers and the drivers.

0.7.6 Project Constraints

The proposed system will rely on cloud computing technologies to develop a fully distributed system.

Some of the cloud services are offered at a cost, but there are free vouchers that allow access to the services for the development and experimentation purpose.

0.8 Literature Review

0.8.1 Related Work

0.9 System Analysis And Design

0.9.1 System Development and Methodology

0.10 Schedule

0.11 Appendices

Bibliography

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