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Raid hailing services guardian system

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ABSTRACT

While cabs have become the new idea of public transport, the increase in cab users has also given way to more crime. In cases of harassment of female passengers travelling alone in cabs in the cities has reported where the victims have been unable to escape due to locked rear doors using Child lock. This feature is indeed dangerous at the time of any disaster or emergency. The paper aims at providing passenger security in public transportation vehicles (/cabs) by providing child lock control to the passenger and also generating reliable driver profile to ensure the safe journey. The Driver profile is cumulative with respect to the passenger feedback and behavioural analysis of driver. The behaviour analysis parameters such as alcohol consumption and sudden change in velocity, direction, abrupt brakes, are detected using suitable sensors. The profile would be generated using Cognitive Agents which provides reliability to the system.

Keywords— Cognitive agent, Child lock, Driver profile, Behaviour analysis, Cumulative performance evaluation

1. INTRODUCTION

Raid hailing services play a vital role in day to day life of citizens. However, this eventually led to an increase in the insecurity of people. Persuasive ride of a passenger is determined by behaviour and ability of the driver. The paper aims at providing passenger security in public transportation vehicles (/cabs). It ensures the passenger security by semi-automating the Child lock system and by generating reliable Driver profile. The control of child lock is provided to the passenger through an Android application. A Driver Profile in this paper quantifies the performance of a particular driver by considering the information about driving style by detecting a sudden change in velocity, direction and abrupt brakes and passenger reviews of previous rides. Also, alcohol consumption of the driver is detected using a suitable sensor. Each driver is rated based on his performance. The accelerometer becomes responsible for motion

detection of a car. Certain thresholds are set and decision values are collected accordingly. The consumption of alcohol is notified and also cumulated in profile building.

2. RESEARCH SIGNIFICANCE

The impact of the paper is mainly on enhancing the security of the passengers in raid hailing services by providing access to the Child lock system and generating a reliable driver profile. Thus the crime rate in the raid hailing services will be considerably reduced.

3. SYSTEM OVERVIEW

This section contains Block diagrams and a brief description of each block. Figure 1 represents the operational phases that are followed in generating a cumulative Driver profile. Figure 2 is representational flow involved in Lock/Unlock action of Child lock

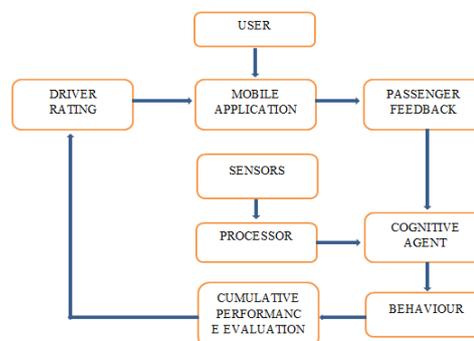


Fig. 1: Block diagram of driver profile generation



Fig. 2: Block diagram of the child lock control system

3.1 User

The user is a passenger with the Mobile Application who gets access to the Child lock system of the rear door. The user connects to the secured Wi-Fi network that is available in the vehicle.

3.2 Mobile application

It is a dedicated Android Application that is built for providing a user interface for Child Lock Guardian System and also used to receive feedback of a ride.

3.3 Passenger feedback

The passenger would be asked to review their experience regarding a ride with few questions. The response of passenger will act as one of the important factors in developing Driver profile

3.4 Sensors

The parameters like abrupt braking, sudden turns, shocks and consumption of alcohol are recorded and they are cumulatively used in building Driver Profile.

3.5 Processor

Data obtained from Mobile Application through Wi-Fi Module is analyzed and the respective signal is sent to Motor Interfacing Module which rotates the motor shaft in either direction. It is used to fetch data from sensors and upload to cloud through Wi-Fi Module.

3.6 Cognitive agent and behaviour

Passenger feedback and recorded driving actions are fed as inputs. The agent is used for communication to decide the quality of driving. The end result of a cognitive agent block is Behaviour i.e. distinct Beliefs are generated as shown in Figure3.

3.7 Cumulative performance evaluation

Ratings are regularly updated at the end of each ride. The passenger feedback rating which is provided to the system is as shown in figure 4. The driver profile is also evaluated and updated cumulatively.

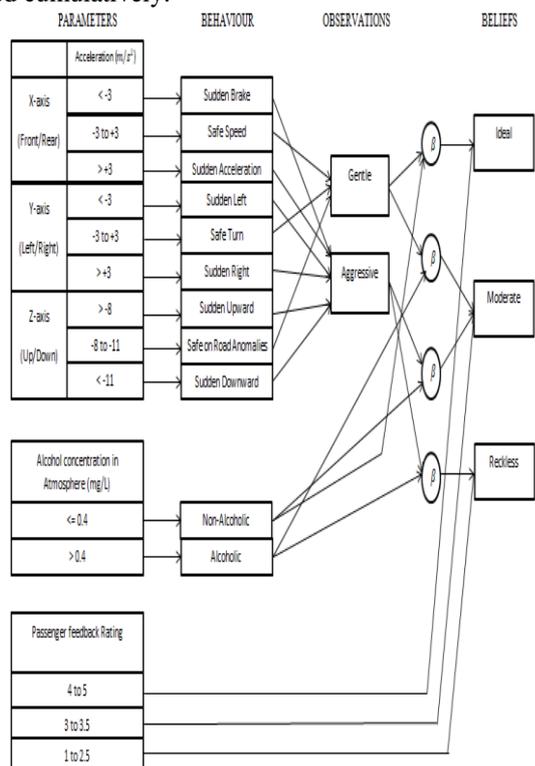


Fig. 3: BOB model for driver profile generation

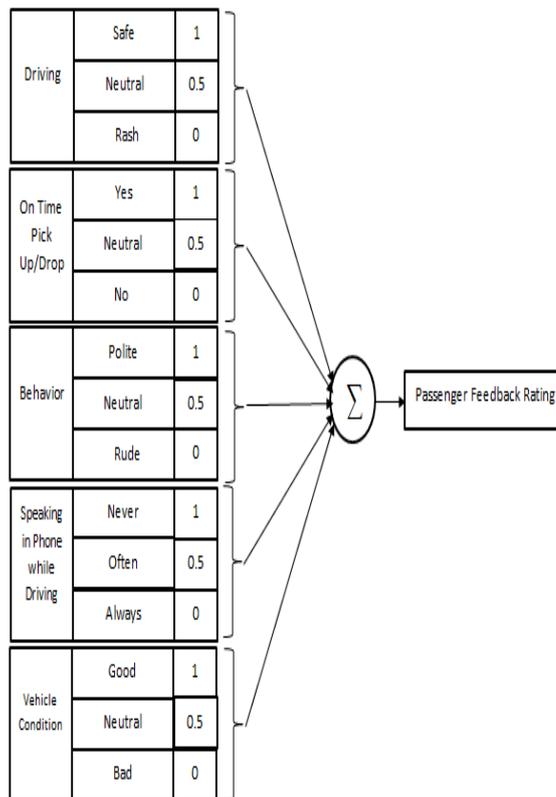


Fig. 4: Generation of passenger Feedback Rating

4. CONCLUSION

The semi-automatic Child lock system uses Wi-Fi for Communication between Android Application and Child lock control module of the car which helps the passenger to control the child lock of the car through an android application which enhances the security of passenger in raid hailing services (cabs). Presently the driver profile in raid hailing services is based only on passenger reviews which are not highly reliable. This system provides a highly reliable driver profile by cumulative analysis of data obtained from both hardware sensors and passenger ratings. Hence the passenger has the flexibility to choose the cab depending on the rating in the generated driver profile.

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