Cacao Bean Quality Assessment Procedure: A Method for Classification Process

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Abstract

As demands for safety and mobility have increased and technological possibilities have multiplied, interest in automation has grown. Monitoring of the overloaded of public utility vehicle should not be overlooked to ensure the safety of the riding public. The research would utilize a descriptive research method in the conduct of the study. A total of three hundred sixty (360) identifies respondents. Respondents are composed of (10) traffic enforcers, (50)drivers, and (300)passengers are selected as respondents of the study. As a result of the survey, overloading of the vehicle may damage the road and will result in a vehicular accident for some automobile.

Keywords: Overloading, Road Damage, Safety, Load Monitoring System, Public Transportation

1.0 Introduction

As demands for safety and mobility have increased and technological possibilities have multiplied, interest in automation has grown. According to Hammer, & Sirbu automation is the use of control systems and information technologies reducing the need for human intervention. In the scope of industrialization, automation is a step beyond realization. Whereas mechanization provided human operators with machinery to assist them with the muscular requirements of work, automation significantly reduces the need for human sensory and mental conditions as well. Automation plays an increasingly important role in the world of economy and daily experience. It offers an excellent opportunity for improving the manual system that we have.

According to the World Health Organization (WHO), there are more than X people killed on the roads daily, with at least 30,000 others severely injured and disabled. At present, motor vehicle accidents are the ninth leading cause of mortality worldwide. According to the 2013 Global status report on road safety in the year 2020, the third
highest cause of death and morbidity is predicted to be overloading of vehicles. Some factors may cause this kind of accidents and most are a result of some form of negligence. Some of the most common include driver error, road design, equipment failure, and traffic violation like overloading.

The monitoring of overloaded vehicles in flowing traffic is more necessary than ever before, as this reduces the traffic safety. The study of Nordengen, P. A., & Hellens, M. C. (1991) supports that having a vehicle overloading management system has shown to be a useful source of data for monitoring long- and short-term trends in overloading and for placing and supervising transport companies that are guilty of blatant or regular overloading.

The best style to counter the above drawbacks is through the weight and load limit regulation of the Land Transportation Office (LTO). Load extending beyond the projected width without a permit, overloading of the axle, operating a passenger truck (bus) with cargo exceeding 160kgs, and allowing more passengers and freight or loading. An imposed a penalty to the driver/operator or the conductor for loading more than the capacity of the motor vehicle. Of three to five hundred pesos. An effective punishment system is a primary component to stop overloading activity, which includes fines, penalties, and sanctions. If fines and penalties are sufficient, then the overloading trucker has the low intensity to prosecute (Bagui, S., Das, A., & Bapanapalli, C. 2013). However, nowadays, load monitoring of vehicles and traffic safety control have become very tedious and inefficient due to a growing traffic population. In time if minimum rates of change in annual traffic development, more precise area classification of road traffic are becoming increasingly important.

Hence, the above discussion has inspired the researchers to develop an out this monitoring, the Public Utility Vehicle Load Monitoring system. The system uses a strain sensor called the stone bridge mounted under the vehicle such that the measured strain represents the load of the car. The data from the strain sensor is processed and then transmitted to a single central controller located in the cabin. The central controller sends the vehicle’s data to the PUVLMS server located at the Land Transportation Office (LTO) via Short Message Service (SMS) whenever there is an overloaded car.

Statement of the Problem

The primary focus of this study is to develop a Public Utility Load Monitoring System, which can be used by the Land Transportation Office and PUV passengers in monitoring overloaded vehicles and in choosing a safer car to ride. Specifically, this will seek to answer the following questions:
1. What is the perception of the respondents on the current passengers and cargo load monitoring system?
2. What are the problems encountered by respondents riding in an overloaded PUV’s?
3. What system can be developed to monitor the overloading PUV’s?
4. What is the respondents’ level of acceptability of the proposed Public Utility Vehicle Load Monitoring System?

Respondents of the Study

The qualified respondents of this study will be the various traffic enforcers deployed by the LTO and PUV drivers and passengers. A total of three hundred sixty (360) identifies respondents. Respondents are composed of (10) traffic enforcers, (50)drivers, and (300)passengers are selected as respondents of the study, regardless of socioeconomic status, religious affiliation, gender, and marital status as long as they are working and residing in the Eastern Visayas Region.

Research Procedures

The very first step the researchers made after deciding on what study to focus on the various references, materials, and reliable persons where we can ask questions. The researcher sent a formal communication letter to the Land Transportation Office (LTO) to conduct a study on improving their system with regards to the monitoring of overloaded Public Utility Vehicles (PUV)’s.

Before the development of the systems, the researcher, distributed a questionnaire to some respondents affected by the research to have a situational analysis as the basis for the proponent system. Such forms and records will also be needed, especially for the PUV drivers who violated the weight and load limit imposed by the LTO.

2.0 Methodology

Research Design

The research would utilize a descriptive research method in the conduct of the study. Descriptive analysis is a method used to obtain information relating to the current status of an issue to describe “what exists” within the variables or conditions of the situation. The standard type of descriptive research tools is a survey questionnaire and interview (Hopkins, 2008).

Research Local of the Study

The research covered the Land Transportation Office’s (LTO) in the monitoring of the overloaded Public Utility Vehicles (PUV’s) and located at the Army Road, Tacloban City.
Research Instruments

Rigorous research work was conducted to come up with comprehensive data that will justify the viability of the study. The researchers visited the Land Transportation Office (LTO) to gather data, regarding the load monitoring of Public Utility Vehicles (PUVs). The load limit regulation of the LTO will provide significant inputs to the research study. Growing mortality and morbidity rate caused by road accidents, road and vehicle damages, all these further encouraged the researchers to go on with the review. The researchers will be conducting a personal interview and survey with the affected drivers, passengers, and traffic enforcers to know their views regarding the monitoring of vehicles. Also, with the help of information from them, the researchers will be able to formulate a solution needed for the improvement of the TO’s current load monitoring system. All of the data will be confidentiality treated.

Statistical Treatment

The researcher tabulated and interpreted the data gathered. Also, the researchers used the percentage formula to determine the standard problem during the operation. The percentage formula to resolve the common issue during the procedure. The study used the percentage formula in getting the responses of the respondents who were amendable with the automation and to those who agree with the advantages of using the Public Utility Vehicle Load Monitoring System. Also, the Slovin Formula was used to determine the number of sampling in the conduct of the survey.

3.0 Result and Discussion

Table 1: Traditional ways of Loading Passengers and Cargos on PUV

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Good</td>
<td>77</td>
<td>21.39</td>
</tr>
<tr>
<td>Needs Improvement</td>
<td>283</td>
<td>78.61</td>
</tr>
<tr>
<td>Total</td>
<td>360</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 1 shows that out of 360 respondents 283 or (78.61%) of the respondents said that there is a need to amend the current ways of loading of passengers and cargoes on PUV. While 77 or (21.39%) of the respondents believes that there is an excellent system for the monitoring of overloaded vehicles.

Table 2: Problems encountered

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A high incident of accident</td>
<td>87</td>
<td>24.17</td>
</tr>
<tr>
<td>Devoid of passenger comfort</td>
<td>91</td>
<td>25.28</td>
</tr>
<tr>
<td>Damages to roads</td>
<td>103</td>
<td>28.61</td>
</tr>
<tr>
<td>Cause of delays</td>
<td>97</td>
<td>21.94</td>
</tr>
<tr>
<td>Total</td>
<td>360</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 2 shows the problems encountered when riding an overloaded public utility vehicle. The result indicates that the significant challenge of overloading causes damages to the road with 87 or 24.17%. In the study of Heider et al. (1998) overloaded truck is a significant factor in the deterioration of highways and is intended for particular vehicle capacity, for maximum tolerance per square inch of a load connected to the roadway surface per vehicle tire. Next is devoid of passenger comfort with 91 or 25.28%, a High incident of an accident with 87 or 24.17 percent and lastly, the cause of delay with 97 or 21.94%.

Table 3: Perception of the Proposed System

<table>
<thead>
<tr>
<th></th>
<th>Respondents</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Passengers are assured of safer land travel</td>
<td>86</td>
<td>23.89</td>
</tr>
<tr>
<td>Vehicular accidents are lessened</td>
<td>59</td>
<td>16.39</td>
</tr>
<tr>
<td>Passengers are assured of a comfortable land travel</td>
<td>64</td>
<td>17.78</td>
</tr>
<tr>
<td>Avoidance of excessive road damage</td>
<td>67</td>
<td>18.61</td>
</tr>
<tr>
<td>Accurate loading of passengers and cargoes</td>
<td>56</td>
<td>15.56</td>
</tr>
<tr>
<td>No Human intervention is needed</td>
<td>28</td>
<td>7.78</td>
</tr>
<tr>
<td>Total</td>
<td>360</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3 shows the perception of the respondents on the proposed system Public Utility Load Monitoring System Tacloban City. The result shows that having a computerized load monitoring system 86 or 23.89% of the respondents assures the passengers of safer travel. However, 67 or 18.61% of the respondents perceived that excessive road damage could be averted. Moreover, 64 or 17.78% assure the passengers of comfortable land travel. Hence, 59 or 16.39% passengers perceived lesser vehicular accidents, and 56 or 15.56% thinks of having a system, there is an accurate loading of passengers and cargoes. Lastly, 28 or 7.78% of the respondent human intervention is deleted or not needed to monitor the overloading of the PUV. As agreed by the study of Zhang, G., Li, Y., King, M. J., & Zhong, Q. (2018) overloaded vehicles may result to severe crashes due to poor safety conditions.

The User Interface of the System
4.0 Conclusion

As the result of the study, having a system of Public Utility Load Monitoring System is a big help to the government and to the Land Transportation Office (LTO) to monitor the overloading of public vehicles to ensure the safety of the riding public. Additionally, overloading of the vehicle may damage the road and will result in a vehicular accident for some automobile.

5.0 References:


