

Classification and Codification System of Trees for Traffic Accident Prevention

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Abstract – This paper explain about seriously problem recently when rainy season is coming up. The problem is many trees beside the street in big cities in Indonesia was fall down when rain with high speed wind. The problems could be huge disaster for many people in Indonesia. The real impacts from this problem are not only traffic jam but also cause of many victims were injured and others was die. If we see from the main function of the trees beside the street, especially for reduce pollution rate and be a lung of the city, it must have a seriously attention from local government. Doing this activities for prevent them to cutting off the trees. The focus of attention for this paper is make the fresh idea to design the system which is have a lot of function for codification and classification of trees beside the street in explicit knowledge based. So the programs could be sustains when the local government had change their leader. The result of this research is model of integrated information system to maintain the information all of trees in the city, and then as a tools to prevent traffic accidents and for knowing status of all the trees in the city.

Keywords: trees, safety, traffic accident, ergonomics.

Introduction

Banks (2002) explain that transportation is one of the major functional systems of modern society. Banks also said that a system, in this sense intended here, is something that may be thought of as a whole consisting of part of components. In Indonesia, transportation still have big question starting from the quality of services, quality of infrastructure, quality of vehicles and something like that. For example, high number increasing of motorcycle and car in Indonesia is one of problem for public transportation.

Banks (2002) said that if viewed in functional terms, the transportation system includes the following components:

- Physical facilities, including streets, roads and highways, railroad, airports, sea and river ports, pipeline and canals
- Fleets of vehicles, vessels and aircraft
- Operating bases and facilities, including vehicle maintenance facilities and office space

- d. Organizations, and
- e. Operating strategies, including vehicle routing, scheduling and traffic control.

Nowadays natural phenomenon was very unpredictable especially relation with rainy season is made many problems in big cities in Indonesia. Classical problem were have been when rainy season is coming up are flood in any where, increasing number of diseases, low productivity of citizens and one the most important problem but many people say that is this problem only little problem is many trees beside the street was fall down. Actually we see the local government not serious for intake this problems. The fact is day to day, years to years still have a high number of traffic accident because of trees fall down.

Discussing this problems, we see this is became a potential problems must have create an alternative solution as soon as possible. Don't wait the next victims is coming up. If we see from academic view, actually an alternative solution for this problem not to complex. The point of view from all the problem are bad collecting data system from government and local government especially data for type, location, number and age of the trees all over Indonesia. I think this is a serious problem. Beside that, also relation with low contribution and awareness from all citizens in Indonesia to keep, grow and maintain the natural environment.

The real contribution from citizen causes increasing number of broken trees in Indonesia, they are must be cutting off the trees when they want to build new house, new office and something like that. It's a wrong way! Meanwhile, many people still argue that they can do everything with the trees, such as using tree for advertisement media with broke the trees, even they called little modification of trees). So, that behavior must have a potential condition that many trees will die in a short time, less than 1 year. If we see from two background of this problem, we still have optimism to create an alternative or simple solution for improve the condition all of trees especially in the big cities for next our better life. And this program has great purposes for minimize number of accidents cause of broken trees.

Research methodology

This research used simple methodologies, start from literature studied, direct observation and interview, and finally we design a simple model for making the integrated information system relation with classification and codification process of type, age, location and number of trees. For further information will be explained next.

a. Literature Review

This phase start form data and information collecting process for supporting this research. This information came from local newspaper, national newspaper, internet, text books and other reference.

b. Direct Observation and Interview

Direct observation and interview has been done since September, 2009 till February, 2010. In this range was rainy season in Indonesia, so we believe that this is the right choice. The reason are in this range Indonesia have a large number of rain frequency. We have nine big cities choose for this research, there are Pekanbaru, Jakarta, Bandung, Cirebon, Semarang, Surabaya, Yogyakarta, Malang and Bali. All cities not represent 100% real condition in Indonesia. But, that's no matter if we still used for this research. When observation doing, no trees had fall down.

c. Model of Integrated Information System

The process of designing integrated information system focus on minor improvement to built the system more comprehensive then before. Main input for this model are type of the trees, number of the trees, location of the trees and age of the trees it self.

Discussion

Before we discuss a lot of data, information and of course the problem, we would like to explain about simple theory of ergonomics. Relationship between ergonomics and this problem is how the principles of ergonomics mix with other discipline could be created an alternative solution for this problem. In ergonomics we can't separate with human factors. Barnes (1980) said that human factor is a system concerned with the relationship between human beings, machines and the work environment.

For this research, we try to combine between human factors and total ergonomics. Manuaba (2006) said that total ergonomics SHIP approach which consists of appropriate technology and SHIP (systemic, holistic, interdisciplinary and participatory) approaches which must be carried out at the whole production processes with aim to attain humane, competitive and sustainable work system and products were illustrated.

From literature review and direct observation we have a lot unique things. In this case, that number of trees in big cities in Indonesia has decreasing for two years. But, this information doesn't support by actual number from local government or center of statistics (BPS). This information we collect from interview with owner of store, local citizen, highway patrol police, and other people who can support for this research. All of them said that decreased number of trees in their city because of increasing civil work activities for improve the street with width and length, bus way project (for Jakarta only), mall, apartment and office project, gas station project and the other else.



Figure 1 (source: Kompas.com)

In figure 1, we can see the broken trees hit one of office or store in front of them. This condition happened in Malang, East Java. This little disaster has a lot of impact for owner, employee, customer and other people who a cross that street.



Figure 2 (source: kompas.com)

Different with the previous figure, in figure 2 we describe about the traffic accident happened in Bali. One of tree hit the car when cross the street. Even we can called that this is not serious traffic accident cause of little tree hit the car, but this accident still have losses of money, time and healthy from the owner of that car. Next time may be, if the owner doesn't have insurance for his or her car is became new problem. Because, total of losses more than 50% of total car's value.

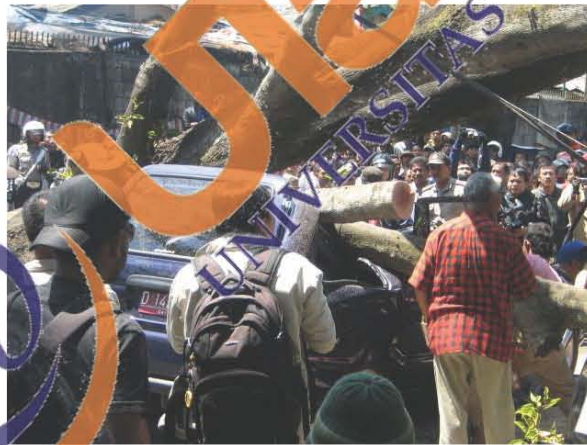


Figure 3 (source: pikiran-rakyat.com)

Figure 3 describe about traffic accident cause of trees fall down in Bandung. This tree hit one car when cross the street. This accident has one victim. The man who included on this accident was killed. This is the reality that broken trees is not a little problem in traffic system. If this problem doesn't have serious attention from local government, in next time many people could be killed by the broken trees beside the street. The accident which have recorded in this figure, shown for us that even we obey all rules on traffic system in our city, we still have risk to be next victim cause of broken trees beside the street when the local government still lazy to create the problem solving. Bandung with high reputation on tourism and development of creative industry, will decreasing their value, if many tourist still worried with this problem. Because, the most important thing to maintain number of tourist come to Bandung, is keep "trust building" to all tourist that Bandung is safe, comfort and can enjoy on they holiday.



Figure 4 (source: pikiran-rakyat.com)

If we see more accurately, from three figures before the accidents cause of trees fall down when dry condition, not cause of high speed of wind or bad quality of rain. This accident just cause of the age of the trees and the structure condition of land. Meanwhile, if we see the next figure on figure 4, this condition cause of high speed of wind and bad quality of the rain. This condition happened again in Bandung. This accident was occurs on Jl. Ir Juanda or we usually called Dago Street. In figure 4, the broken trees closed till 50% on the street.

After we discuss all factor in this problem with using many examples of broken trees as a main causes, so next step is design the model of integrated information system as an alternative solution for this problem. The model would describe more definitely in figure 5.

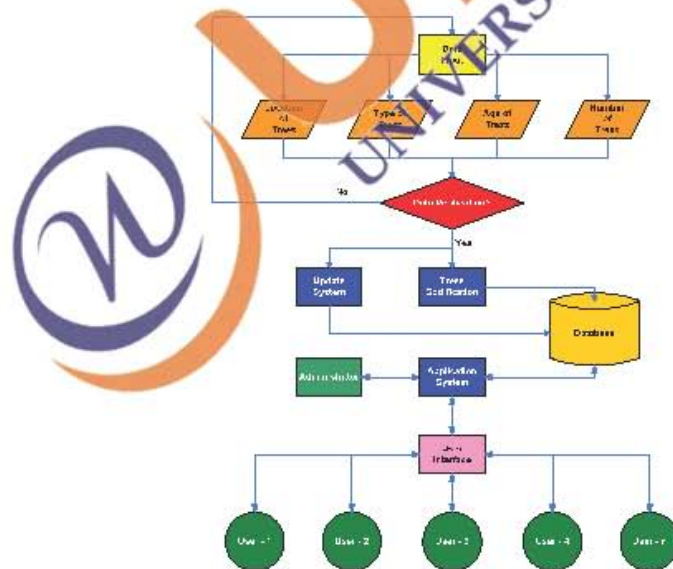


Figure 5 Model of Trees Information System

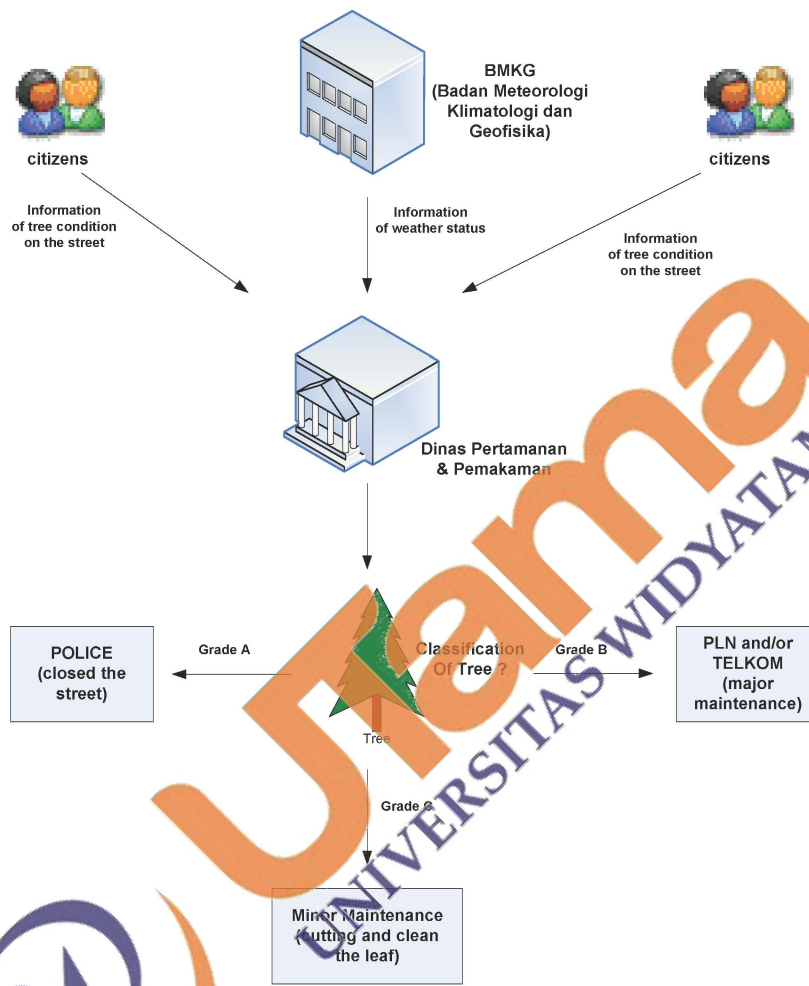


Figure 6 Procedure of Prevention System

Conclusion

When we're finished discuss all about the problems, the conclusion are:

- d. Model of the integrated information system collecting all data and information from all of the trees, to prevent traffic accident and other type of accidents cause of trees fall down. This model's benefits are for all citizens who include in traffic system in the city.
- e. This result not only for design the prevention information system, but also referencing for traffic sign system installation process.
- f. For next research, we hope the real prevention information system has realized and we can used for better life in our city. On the other hand, if the prevention information system has been done, all citizens on secure condition.

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