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ONLINE SHIPMENT SCHEDULING EXPERT SYSTEM

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DECLARATION

I certify that this thesis and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline

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ABSTRACT

Scheduling is a normal day operations that human are used to already. Despite its normality, it is not easy to arrange such arrangement. Even though scheduling has been done manually through out many years, but with the break through of technology, such operation can now be done machine. Shipping company usually handled hundreds or maybe thousands of transactions per day. As a haulage company, it is important for them to keep up their pace to be able to handle hundreds of data given the situation. The main purpose of this research to develop an online expert system that will help the top management to list out the suitable prime mover and its driver based on the data and rules. Currently there is no such system that running online. To develop this expert system, the researcher has set up an interview and series of discussion with the representation from the haulage company itself. The interview is to gather information about the haulage company operation and the requirement to make the scheduling system online. Results from the interview have helped the researcher to come up with the development of the online system. Even though some variables are uncertain and unstable, the system has proven to be quite effective in terms of arranging and delegating the usage of prime mover and the driver. Lastly the uncertainty variables and constraints remain an open challenge to be explored further.

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One thing that make RBES is so good is that RBES is because its efficiency. RBES can increase throughput and decrease personnel costs. Although RBES are expensive to build and maintain, RBES are inexpensive to operate. Development and maintenance costs can be spread over many users. The overall cost can be quite reasonable compared to expensive and scarce human experts. Next is the uniform structure where production rules have the uniform IF-THEN structure. Each rule is an independent piece of knowledge. The very syntax of production rules enables them to be self-documented. Another one is the separation of knowledge from its processing. The structure of a rule-based expert system provides an effective separation of the knowledge base from the inference engine. This makes it possible to develop different applications using the same expert system shell. It also allows a graceful and easy expansion of the expert system. In order to make the system smarter, a knowledge engineer simply adds some rules to the knowledge base without intervening in the control structure.

Meanwhile, these are some restraint of a rule-based system (Slade, 1991). The first and foremost is the ineffective search strategy. The inference engine applies a thorough search through all the production rules during each circle. Expert systems with a large set of rules can be slow, which means that it is not suitable for a real-time application. Next is creativity. Human experts can respond creatively to unusual situations whereas RBES cannot. In addition, RBES are not good at recognizing when no answer exists or when the problem is outside their area of expertise.

The last one is the inability to learn. Unlike a human expert, who knows when to break the rules, an expert system cannot automatically modify its knowledge base. So, it is an inconvenience because the knowledge engineer still has to revise and maintain the system from time to time.