

The mechanic system essay



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This project aims to create a simple mechanic system that will raise and lower the spare tire of a vehicle so that it saves on the time and effort used to remove the tire manually. The main reason for the winch is to act as an assist for those who do not have the physical ability to reach the tire. The elderly and the disabled need help when changing tires and the winch, will assist them to be able to do this without difficulties. The research can be applied by car manufactures to create an automatic inbuilt winch in their vehicles to work. The research will also assist car enthusiast add features to their vehicles that were not there before.

Therefore, it presents a challenge to develop an automated car system that is easily usable in the event tire changing is necessary in areas where professional service is not available. Mary Seelhost, in her article published in the popular mechanics journal, “ Think it’s new, Think again” illustrates the challenges motorists face when a tire punctures (Seelhost, 2001). Her assertion for the need of reliable cost effective solutions offer a challenge to the automotive industry to develop long term solutions for drivers. The solution should incorporate individuals of all ages and abilities; therefore, invalids and the disabled should be able to use the automated device with ease and convenience.

Significant developments in tire maintenance are demonstrated by various automated devices developed by companies like the John Bean Company; however, the developed devices are tailor-made to be used within the confines of an auto shop (Bean, 2000). Hence, the question; how best to reflect the needs of a lone driver facing tire problems in a remote region?

How can the needs and process of changing tires be incorporated in a compact, integral device?

While it is necessary to develop an effective and efficient, automated tire changing device, the project will focus on a critical analysis of existing traditional methods. This will incorporate the modification method in conducting experiments and research. The evaluation of the traditional methods and techniques provides a chronological sequence of processes, hence best fit to provide solutions to experiment and research. The project will utilize documentation, observation and analysis of the traditional method; thus, it is significant to participate in changing tires using traditional methods.

These will provide an insight towards the essential requirements of the process; while factoring in individual attributes required for successful execution of the changing operation. While the traditional methods are characteristically safer in research aspects, it essential to study the automated processes which incorporate technological aspects. These will facilitate the creation of a comprehensively informed research and experimental approaches towards the project. Therefore, an in-depth analysis of the research and experimental data will determine the relevance and extent of application of the findings arrived at.

Data collection and analysis will incorporate past and current processes, sampling, questionnaires, interviews and experimental results. A minimum sample size of 100 drivers will be evaluated separately. The samples will factor auto shop operators, disabled individuals, the elderly, youths and

adults; however, these will be further classified on gender basis to determine gender preferences in the project. The feasibility of the project depends on accurate and reliable data. Therefore, in order to obtain unbiased information, a detailed questionnaire will be used to determine the motorist's observations, preferences and opinions towards the project.

The questionnaire results will be analyzed while factoring published literature on industrial automation and innovation methods. This will provide a clear viewpoint of the project; therefore, the experimental phase of data collection will incorporate the analysis of the obtained materials. The experiment will incorporate essential materials and parts like a small winch, motor, gearbox, limit switches to control the load chain, hand brake, light brake switch, wire connections table and tire. These will be critical in determining the extent and feasibility of the project; however, consultations and discussions will be required through advisors and project supervisors. These will provide a critical evaluation of the project while making essential recommendations.