**COLLABORATIVE ADVISORY SYSTEM ON AUTOMOBILE FAULTS**

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**CHAPTER ONE**

**INTRODUCTION**

Automobiles may suddenly develop faults at any location which makes automobiles owners to be worried. Usually, there are warning signs to indicate that automobile faults are on about. But the signs, many automobiles owners do not understand. Moreover, the number of automobiles owners that needs complex repairs outpaces the number of professional engineers to attend to these people. To guarantee quality repairs for our automobiles, innovations are needed, (Christensen C, 2009).

Team-based automobile repair in mechanical engineering shops has become common practice mostly in complex mechanical fault cases where several engineers are required. For example, when working on automobile engines or planning repair strategy that involves concurrency or sequential repairs of different parts of such automobile, several engineers are involved and synchronous interaction among these engineers in a team meeting is necessary.

Virtual communication environments in engineering are slowly becoming more popular with the advent of reliable high speed internet network. As such, social network technologies provide an internet-based platform for communication about automobile faults, for sharing repair experiences and to increase engineering knowledge. (Powel J.A et al, 2003).

Moreover, internet-based contacts are a way to expand the possibilities for communication outside visiting the automobile engineering shops. Recent developments in cloud computing technologies, the widespread use of mobile smart devices raise the need of on-line collaboration among automobile owners and automobile engineers.

Platforms using social media technologies, such as Wikipedia, Facebook, LinkedIn, YouTube, and Twitter, have become extremely popular among billions of people worldwide. These tools have brought new possibilities for co-creation and communication between individuals with minimal time and cost restrictions, (Shirky C, 2008).

The main objective of being collaborative is the critical factors of communication and workflow control. It includes the properties of instant messaging, team spaces, web sharing, audio conferencing.

A collaborative advisory system on automobile faults is an avenue where several people with little or much engineering skills and knowledge meet irrespective of their current location to discuss and deliberate on automobile faults cases that may be minimal or complex in nature. It is a real-time system that is intended for use by automobile engineering oriented people and also, automobile owners to share automobile faults experience and solutions among themselves on the platform.

It is a real-time system where automobile engineers and automobile owners can deliberate and decide on anything concurrently, share files including images and documents.

The collaborative advisory system on automobile faults will guide people to detect faults in automobiles based on people’s opinions and to know the solutions to some of the faults that are not complex. It will also allow someone to communicate directly to specialists on a particular automobile fault.

The platform will allow users to create threads on any fault on their automobiles and other people that have had such experience will be able to view and comment on such thread. It makes use of a centralized database of users’ information which can be viewed by other users.

The system is used to request people’s opinions and suggest best approaches in dealing with some signs of faults in automobiles.

In general, the features of the system will include;

* Creating a thread
* Commenting on threads
* Instant Messaging
* File sharing including images and documents.
* Viewing other users’ profile.
  1. **PROBLEM STATEMENT**

Individuals have their ways of doing things but sometimes this individual way may not fully be adequate if a particular problem is occurring the first time, thereby, making it difficult for such individual to solve. The power of an individual mind is not always sufficient to carry out tasks, no man is an highland of knowledge hence the need for interaction and collaboration with other individuals is critical for creativity and innovation.

Capital is sometimes, a barrier to getting things done easily and in time. Some automobiles may develop faults where automobiles engineers are far from and even, such faults are minimal and have been experienced in the past by other people. Taking faulty automobiles to engineering shops, no matter how minimal the fault is, requires one to pay.

Some automobile faults may be complex hence may need expertise collaboration, advice or opinions.

* 1. **AIMS AND OBJECTIVES**

The aim of this project is to design and implement a Collaborative Advisory System on Automobile Faults that will encourage real-time communication and contribution without the boundaries of distance.

The specific objectives include:

* To ensure real time communication among automobile owners and automobile engineers
* To eliminate barriers due to distance when seeking expert opinions
* To get solutions to automobile faults
* To schedule convenient real time meeting with automobile engineers.
* To reduce expenses on automobile faults.

**1.3 METHODOLOGY**

* The software requirement analysis will be taken by studying similar existing collaborative system and interviews with automobile owners and automobile engineers.
* System modelling and web services approach will be used for system design. The system modelling will be used to describe the structure of the collaborative advisory system on automobile faults, the Data Flow Diagram, Use Case tool ad Entity Relationship Diagram will be used to model the system under this phase. The web service approach will be used to ensure that the proposed system will be compatible with any operating system.
* The system will be developed using HTML5, bootstrap responsive CSS library, JavaScript and PHP to stand as the back-end of the platform.

**1.4 LIMITATION OF THE STUDY**

The major limitation of this study is:

* The time limit within which the study is expected to be completed.