**REQUIREMENT GATHERING**

**1. Requirement Gathering Using Surveys**

**Purpose**

Surveys were conducted to collect quantitative and qualitative data from potential users. The aim was to understand user behaviors and expectations regarding car fault diagnostics and mobile app technology.

**Target Audience**

Regular car owners with minimal technical knowledge

Students with vehicles

Delivery drivers

**Survey Design**

The survey was distributed online via Google Forms, comprising:

Multiple-choice questions (to gather measurable data)

Open-ended questions (to allow for additional suggestions and feedback)

Sample Questions and Key Findings (Note: Actual questions and findings were provided in the original document's attached Google Form responses.)

**2. Requirement Gathering Using Interviews**

**Purpose**

Interviews were conducted to gather deeper, qualitative insights from individuals experienced in car diagnostics or potential app end-users. This method provided detailed feedback, emotions, and context that surveys couldn’t capture.

**Interview Participants**

3 professional drivers

2 car repairers (Mechanics)

2 students who drive frequently

1 rideshare driver

2 lecturers

**Interview Format**

Semi-structured interviews (mix of guided and open discussions)

Conducted both in person and via WhatsApp voice calls

**Sample Interview Questions and Responses**

Question: How do you currently handle unusual sounds from your vehicle?

Driver 1: “I have been driving since 1992 so I handle it on my own and can interpret all sounds.”

Driver 2: “I just call the company mechanic.”

Driver 3: “There are some sounds I can handle, others I call the mechanic.”

Question: How important is it to receive guidance via a mobile app for diagnosing car problems?

Driver 1: “Very important, especially for inexperienced drivers.”

Driver 2: “Not interested because the company sends a mechanic.”

Driver 3: “Yes, it’s necessary as the world is changing. If the app is good, I might learn to use it.”

Question: What other information can you provide about dashboard warning lights and sound detection?

Driver 1: Shared knowledge about various dashboard lights, e.g., battery, fuel gauge.

Driver 2: Mentioned specific cases, e.g., modification light indicating a fault.

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**3. Brainstorming**

Objective of the Brainstorming Session

Define key app features and functionalities

Decide on the type of mobile application (native, hybrid, cross-platform)

Choose an appropriate development framework and supporting technologies

**Participants**

All members of the student project team

**Method**

A free-form group discussion where members shared ideas openly. Notes were grouped under:

App Features

App Type & Compatibility

Framework & Tools

**Key Points Discussed**

**A. App Features**

Dashboard Light Recognition (using phone camera)

Engine Sound Diagnosis (using phone microphone)

User guidance with repair suggestions and video tutorials

Offline/online functionality

History and records

**B. Type of Application**

Agreed to build a cross-platform mobile application for Android and iOS

**C. Development Framework**

Selected Flutter for:

Cross-platform support

Good UI performance

Large developer community

Easy integration with camera, microphone, and data storage

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