**PROBLEM DEFINITION**

One of the major challenges disturbing the automotive sector is when vehicle parts will break down. For management firms that depend on their vehicles to conduct business, this is a crucial concern. Unexpected malfunctions can result in unplanned downtime, maintenance costs and loss of business.

**Relevance to the Theme**

This problem is relevant to the theme of "AI across industries" because it can be well solved using AI. Specifically, machine learning algorithms can take in lots of data from sensors on vehicles (example., temperature, pressure, vibration) to predict when a component will fail. This turns maintenance into a predictive rather than reactive process.

**How useful will the solution be?**

An AI-powered maintenance solution would be extremely beneficial by:

• Minimising downtime: By predicting failures, maintenance can be arranged in advance, avoiding unexpected breakdowns.

•Saving costs: Organisations can reduce costs by performing maintenance only when needed, rather than on a pre-set, and often wasteful schedule.

• Improving safety: Predicting the failure of critical components like brakes or engines can prevent accidents.

• Resource allocation optimisation: Parts and skilled labor can be ready and on hand for the scheduled maintenance, increasing efficiency.