Interactive Chatbot for Noise Repair Diagnostics

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Client Background

TVS Motor is the 3rd largest two-wheeler manufacturer in India, with an annual revenue of US$2.9 billion.

TVS Motor operates more than 1600 workshops across India alone, each with an average of 4 technicians.

8 The company's service rate target for TVS technicians is 8 vehicles per day.

TVS uses instructional videos to diagnose noise issues which contributes to a productivity of 4 vehicles per day.

$$ The technician productivity gap costs the company US$62 million per year in missed service revenues[1].

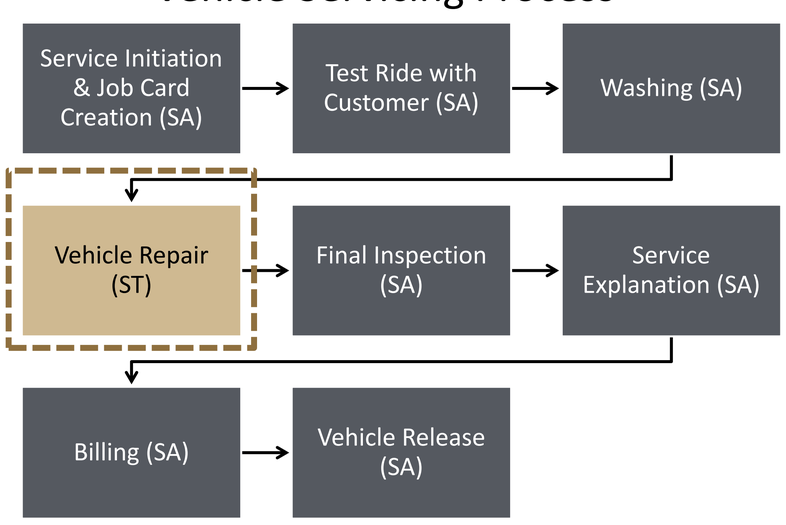
Problem Statement

TVS Motor service technicians currently rely on extensive instructional videos to diagnose noise issues on Jupiter scooters. The company aims to reduce the time taken to diagnose these issues leading to increased worker productivity, customer satisfaction, and service line revenue.

System Model

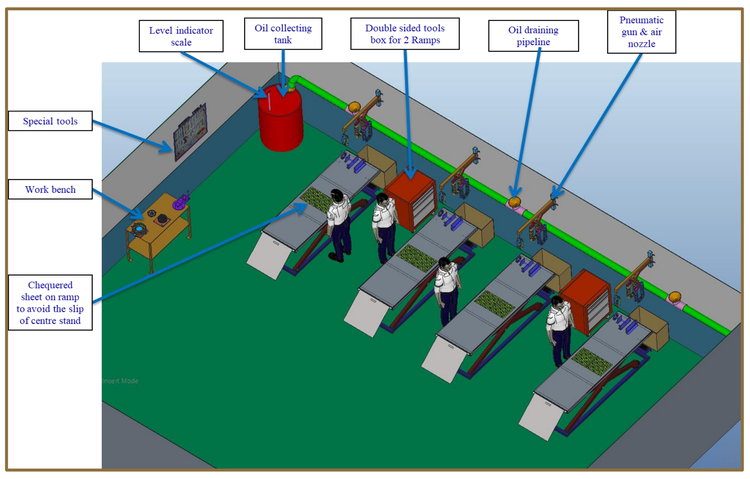
TVS Motor specifically requested a chatbot to help service technicians diagnose noise issues more quickly and accurately.

Vehicle Servicing Process



The diagnostic chatbot aims to streamline the vehicle repair portion of the service process

Service Workshop Layout



Technicians typically rely on mobile devices, not desktop computers

// Technicians will be using the chatbot and performing vehicle repairs simultaneously

Methodology

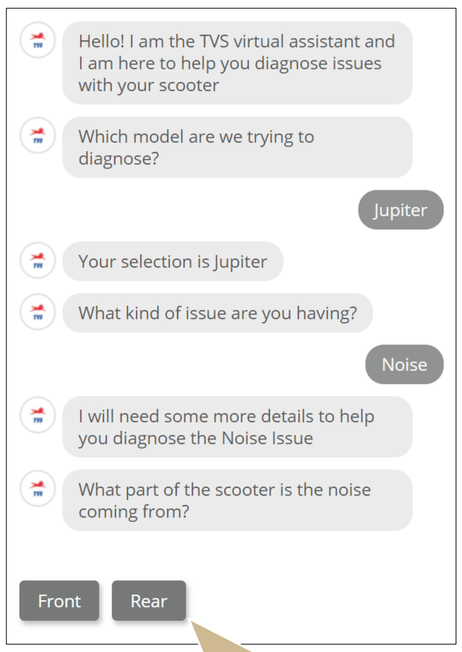
1. Evaluate capabilities of different chatbot types and compare to desired requirements

Requirement	Rule-based	Text-based
Easily scalable	✓	✓
Low technical complexity	✓	X
Simple user inputs	✓	X

2. Develop chatbot using *BotUI* repository
   - Predefined functions/aesthetics
   - Mobile-friendly
   - MIT License for full commercial use
3. Create user's manual to supply to TVS for launch and maintenance of the chatbot

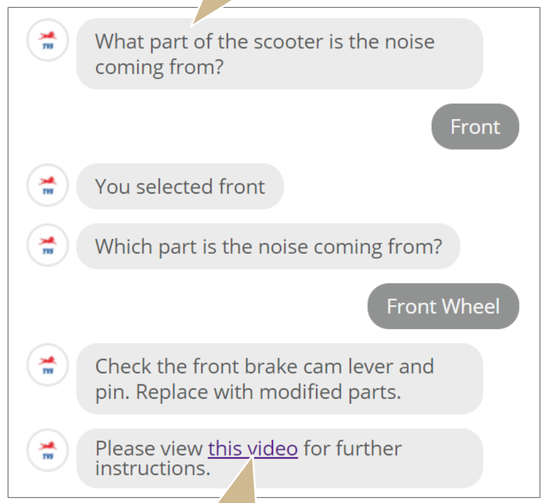
Results

A functional, scalable chatbot prototype with concise user inputs



Simple user input via buttons

1-2 sentence responses



Access to external resources

The chatbot can fully diagnose many noise issues on a Jupiter scooter in under 2 minutes – an 83 to 91% time reduction from the instructional videos.

Discussion

Improving productivity by just one vehicle per day per technician can result in an additional US$15+ million per year in revenue[1].

The chatbot can be expanded to serve in other enterprise areas, such as customer service, quality control, and more.

Documentation enables client to maintain chatbot and apply to additional areas.

Cybersecurity considerations from the TVS IT team will be critical to chatbot stability.

ReThink IE

[1]Assumptions: 4 additional scooters per day (achieve productivity target of 8), 1600 workshops, 4 technicians per workshop, 520 Rupees per scooter, US$ exchange rate on 4/24/2021