Car Guru

An all-in-one solution to managing your vehicles health

By Jonathan Mather

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PROJECT STATEMENT

Cars are increasingly becoming a necessity in our everyday lives. They allow us to travel to work and visit our friends and family.

However, with the expense of all aspects of vehicle ownership increasing, from the cost of a tank of fuel to new parts and labour costs, many people find funding motoring challenging.

This is especially true with young, new drivers who may be studying or on lower incomes. Reducing costs while ensuring they have a safe and reliable vehicle is vital to them.

CarGuru is an all-in-one vehicle maintenance platform aimed at new young drivers, allowing them to carry out regular self-checks on their own vehicles as well as small maintenance tasks in order to prevent big bills at garages.

INTRODUCTION

ABOUT ME

Hi! I'm Jonathan Mather, a 4th year Digital Interaction Design student at the University of Dundee, in Scotland.

I love designing screen-based interactions. My goal is to improve a part of people's lives, whether it be making a process more enjoyable and interesting or making a process easier

I enjoy exploring new software to use when prototyping and making use of new features as they are launched in order to make the prototypes I create more interactive.

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ACKNOWLEDGEMENTS

As my project concludes, I would like to thank everyone who has aided and supported me throughout my years at the University of Dundee!

A massive thank you to the staff who have been responsible for running the final module of my academic studies, and stretching further back to previous years. Thank you to **Dr Andrew Cook**, **Dr Paul Gault** and **Martin Skelly**. Their support throughout has been invaluable.

Another thank you has to be extended to my family, friends and other individuals who have helped with all areas of this project.

ABOUT CARGURU

CarGuru is an all-in-one vehicle maintenance platform aimed at new young drivers, allowing them to carry out regular self-checks on their own vehicles as well as small maintenance tasks in order to prevent big bills at garages.

CarGuru also makes use of an AI assistant to further enhance your vehicle maintenance journey.

EXPLORE

THE SITUATION

Many young drivers today are neglecting basic car maintenance. Most are doing this due to the cost-of-living crisis, leaving little funds to put towards vehicle upkeep. Insurance companies are seeing this first-hand, noting how they are being made aware of more and more vehicles suffering from expensive damage.

Most young drivers don't fully understand why regular vehicle maintenance matters, so as a result, they save money in this area.

However, small preventative maintenance can be done at home for little cost and with no experience. Things like regular oil level checks can highlight a leak from the engine, and if addressed early, may cost little money to fix compared to engine failure, which could result further down the line if the issue isn't caught, which would set the owner back thousands in expensive bills.

Insurer sees 'worrying' increase in lack of car maintenance as living costs rise

People may believe they are saving money, but repairs could end up being more costly and compromise the vehicle's safety, experts are warning.

Vicky Shaw • Thursday 27 April 2023 10:11 BST

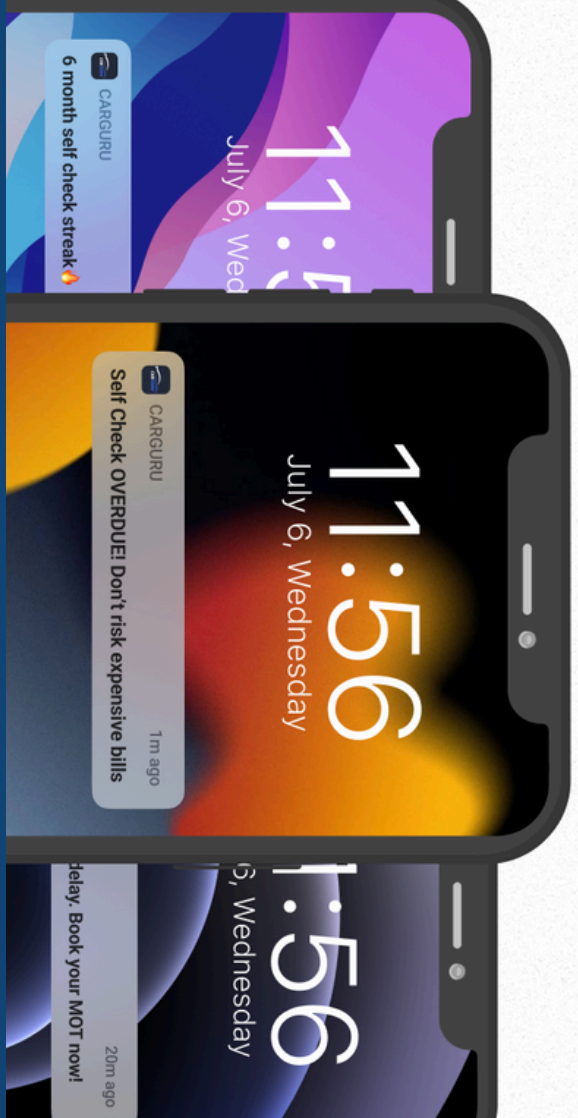
LV= General Insurance is urging motorists to make sure their vehicles are properly maintained (Andrew Matthews/PA) *(PA Archive)*

THE CHALLANGE

The main challenge presented to this project was trying to get individuals not interested in vehicle maintenance to partake in it.

Upon discussions with Andrew and Paul, a good approach to this issue would be to add a level of gamification to my final solution to keep the user interested in an area that they wouldn't usually bother with.

Another way that was discussed to achieve this was ‘scaring’ the user. Notifications and prompts stating to the user that expensive engine damage or along those lines would occur if action wasn't taken would encourage the user to carry out whatever task is necessary to prevent this.



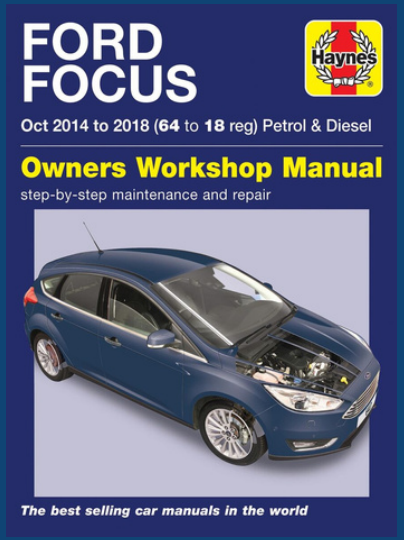
CarGuru Notifications

EXISTING SOLUTIONS

Part of the research into my project was looking at existing solutions that addressed, or attempted to address, a part of my final solution idea.

Apps such as ‘Know Your Car’ provide the user with a platform to track their vehicles MOT and TAX status, but do so using a poorly designed interface and provide little help with maintenance.

Car manuals like ‘Haynes’ provide detailed, in-depth information for up to advanced mechanics on how to change parts and properly maintain your vehicle step by step. However, this solution goes very into complicated details and skills, too far for 90% of vehicle owners and has limitations being primarily paper or PDF based content

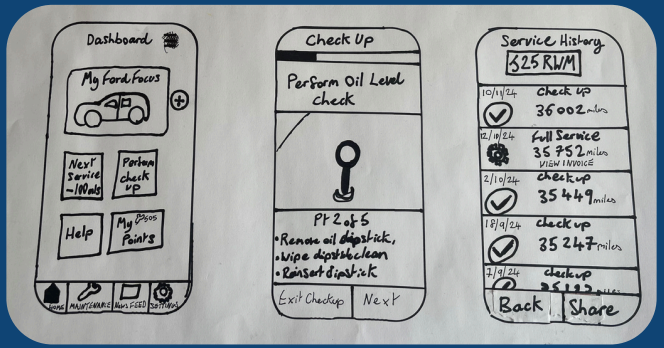


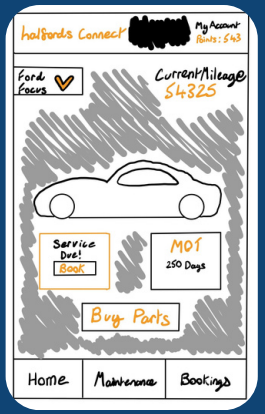
END GOAL

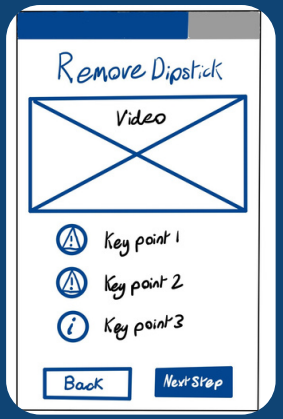
I set out to build an all-in-one solution to vehicle maintenance. My solution would need to include the following

- **Vehicle self check ups** - allowing the user to regularly check fluid levels for safe vehicle operation
- **Maintenance Guides** - providing guides for the user to follow to top up fluid levels themselves
- **Vehicle Health status** - tracking of the user's MOT, Service and Tax status
- **Calandar/Bookings**- creating bookings for vehicle servicing and MOT's all in one place

- **Unique interaction -** or 'hook' - something to set the app apart from the rest, to encourage drivers to use the app







FIRST VIDEO

For one of our first briefs, I created a video called
“The Commuter”. It followed the day of a young driver who uses their car to get to work and for social reasons, but has very little knowledge of what is required to maintain a car properly.

The idea of this video was to outline the importance of a vehicle to an individual while also demonstrating the lack of understanding most drivers possess when it comes to the importance of vehicle maintenance.

BUILD

TARGET AUDIENCE

I chose young and new drivers as my target audience for this project.
The reason for this is that most people of this age don't have much money but require reliable vehicles to get around to jobs, university and more.

This group, I felt, would also benefit most from the app, keeping costs down for them while gaining important life skills through technology.

TECHNOLOGY

Looking ahead to how best to prototype the final solution, I decided to implement a combination of Figma and Protopie to create the app.

Figma would be used for creating the base screens, components and layouts that would form the basic pages of the app.

Protopie would be used to create more complex interactions, allowing video and smart content integration, and take the prototype to the next level.

These two tools give great functions in different areas and would provide a tried and tested platform to build my app, which I have grown very familiar in using.

LOGOS

VARIOUS ITERATIONS OF THE CARGURU LOGO

Through feedback, I was encouraged to explore many different versions of potential logos, then ask for some opinions on the best option to use.

The final decision was a simple, more standard car shape with the CarGuru logo beneath it.

This was chosen as it reflected a more typical example of the type of car someone in the CarGuru target audience would drive, rather than a sports car, which some of the other versions showed.

DEVELOP

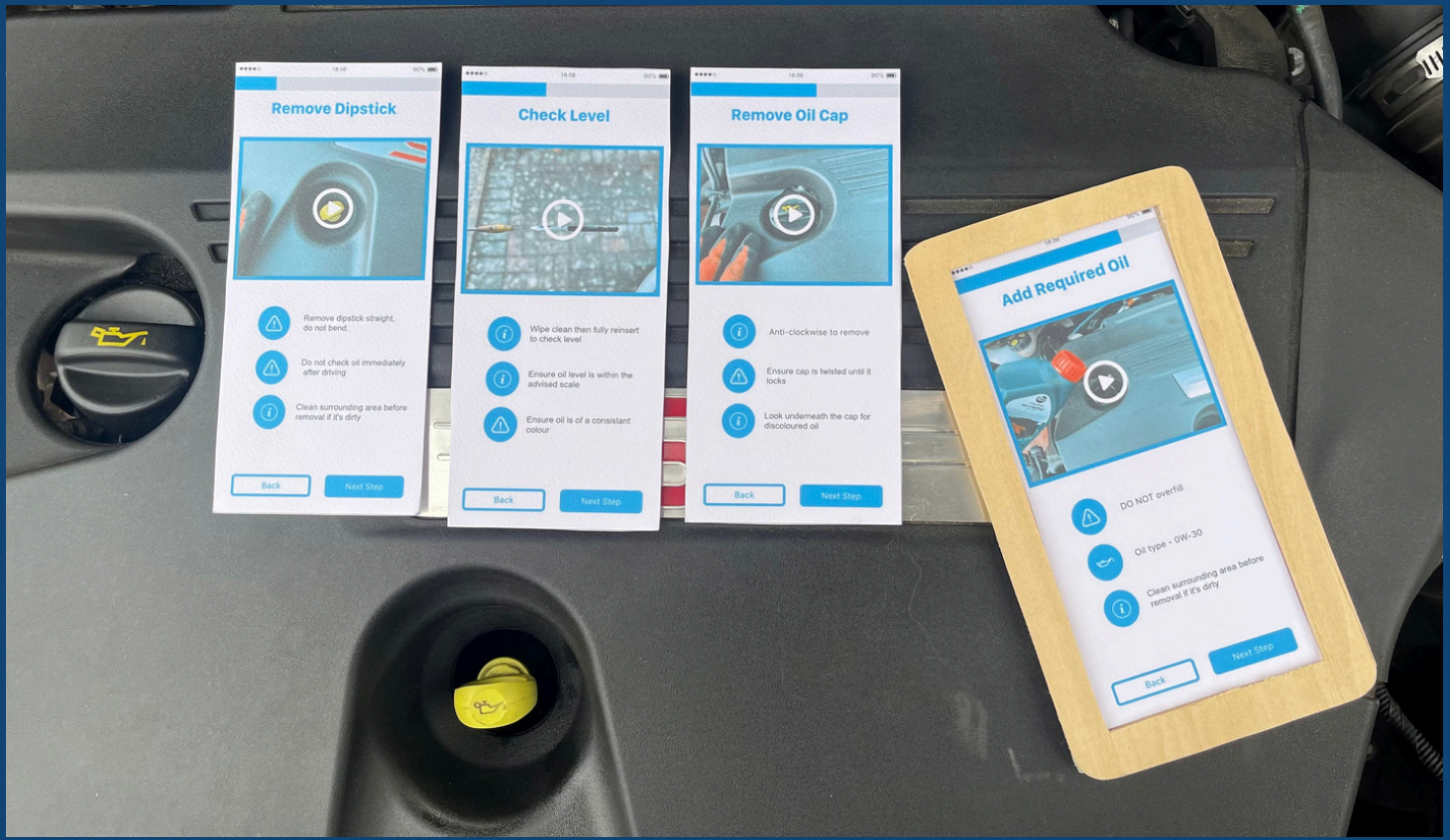
MARK 1 PROTOTYPE

BALSA WOOD FRAME WITH SWAPPABLE CARDS

The Mark 1 Prototype was designed to demonstrate how checking and topping up a vehicle's oil level could be shown in the app, and used to guide the user through the process.

The wooden frame was hollow with a slot at the top to remove cards and change them with new ones, which showed a different screen within the process.

Mark 1 prototype



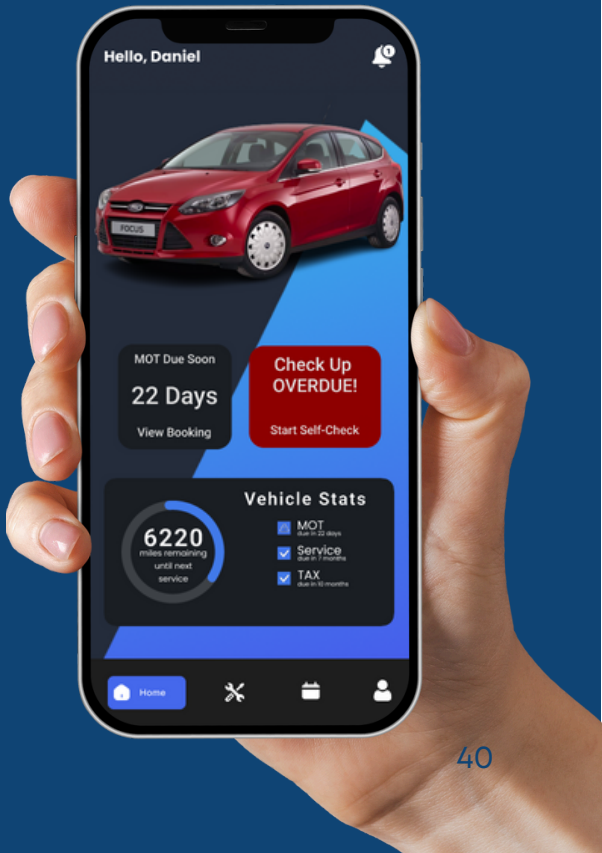
MARK 2 PROTOTYPE

4 MAIN SCREENS BUILT IN FIGMA

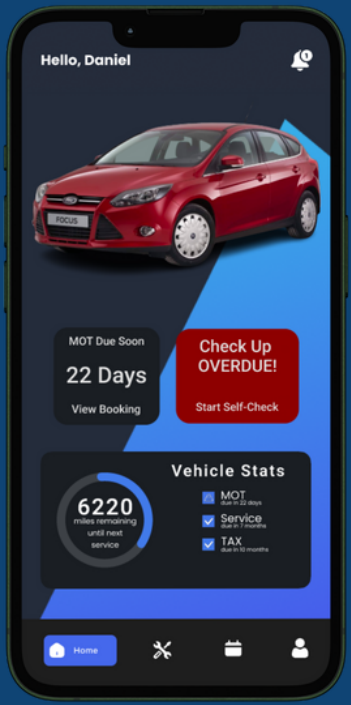
The Mark 2 Prototype was designed in Figma and consisted of 4 main screens that the user would interact with

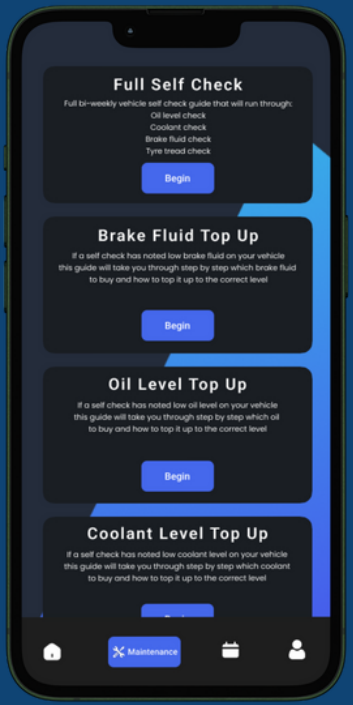
- HOME
- MAINTENANCE
- CALANDER
- MY PROFILE

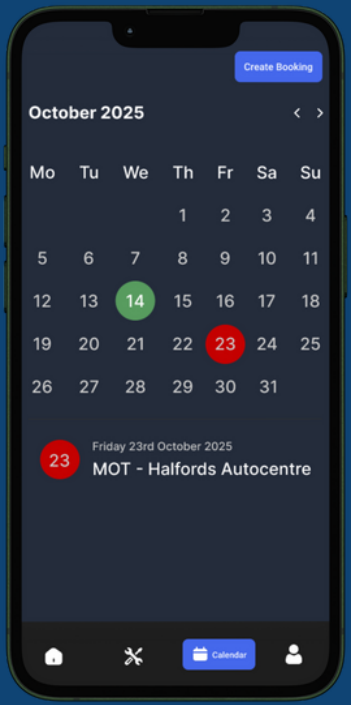
This prototype could be viewed live in the Figma app and allowed users to test out a basic version of the app, giving a hint as to how using the final app would look and feel

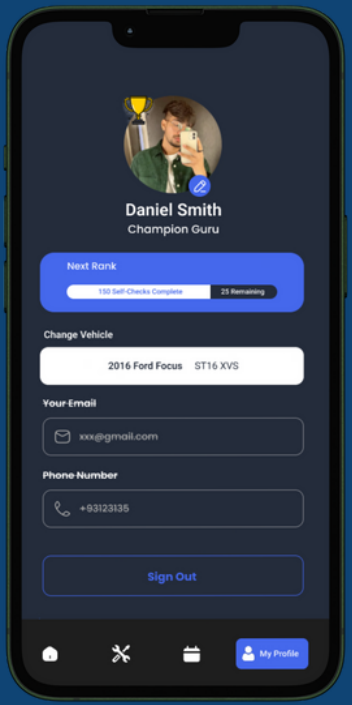


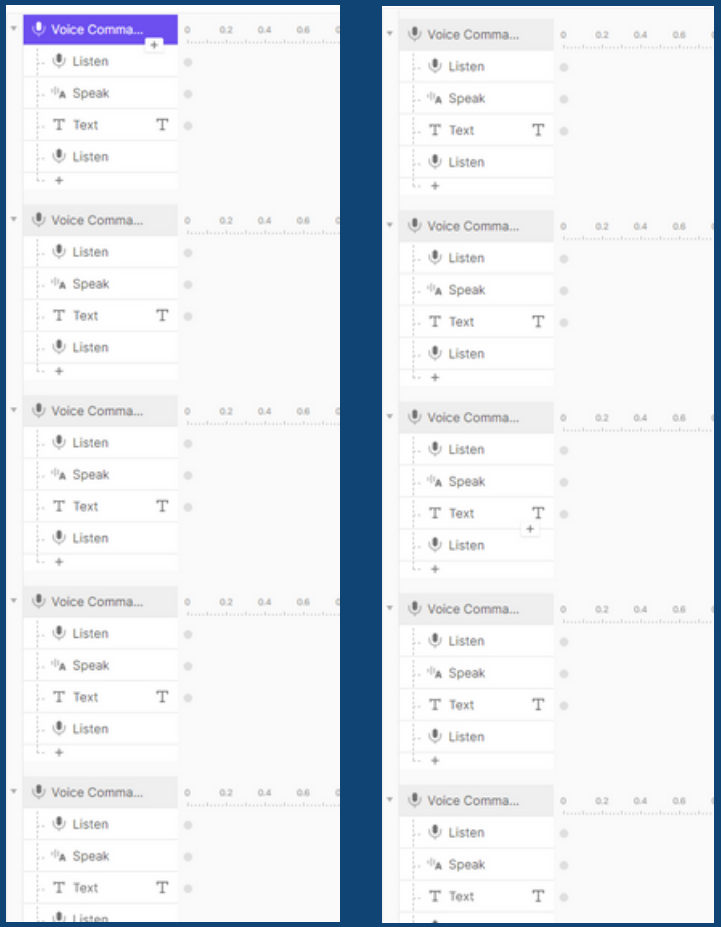
Mark 2 prototype - main screens











AI VOICE ASSISTANT

UNIQUE INTERACTION

Andrew and Paul both suggested something unique to take the app to the next level.
I started to explore a new feature in Protopie in which the software will listen for prompts by the user and use those to activate and speak set responses in real time. Similar to assistants like 'Siri'.

This process took a long time to set up and required lots of trial and error to get responses functioning correctly

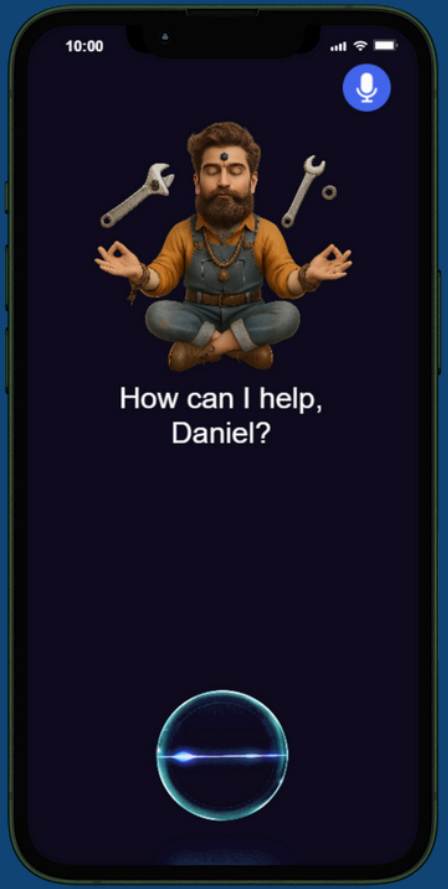
MARK 3 PROTOTYPE

AI VOICE ASSISTANT

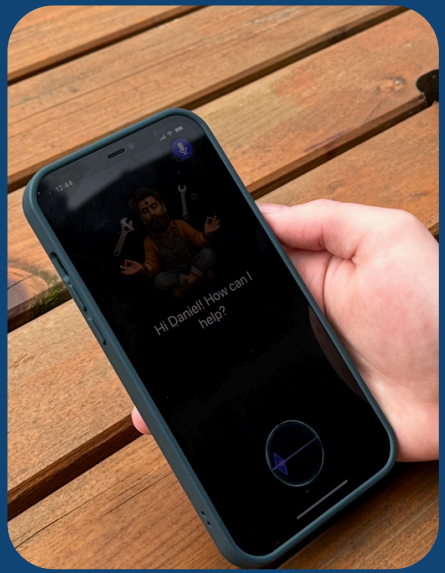
The Mark 3 prototype showed off the latest addition to the CarGuru app. A chatbot called ‘Guru’ that would, in real time, listen for prompts from the user and respond.

Questions such as:

“What should my tyre pressure be ?” can be asked vocally by the user. The AI voice integration will then respond with the relevant answer to the user, in this case,
“Your tyre pressure should be set to 32 PSI”



USER TESTING



User testing was utilised to validate if the systems that were developed were effective in their goal of providing an all-in-one solution to maintaining vehicle health and maintenance in an easy to use manner.

3 users carried out self check testing, running through guides and procedures to test if they were effective in their roles.

6 users tested the AI voice assistant to ensure they would naturally ask the device relevant prompts to get answers, and that the software understood different users' voices

FEEDBACK

APP OVERALL TESTING

Overall feedback on the app was very positive. The users felt the self-check process and the guides were easy to follow and took the edge off the usually scary car maintenance world, taking it down to a simplistic level.

One person suggested the ability in the future to be able to add multiple vehicles and switch between them on the home screen, which I think would be a great idea to expand the app.

VOICE ASSISTANT TESTING

The voice assistant testing proved very worthwhile, and I gained invaluable feedback from it.

It was first identified that, on the whole, the software could understand most voices and accents when spoken clearly into the device, and this did not prove an issue, with very few repeats being needed.

Some users, however, when using the device, were asking different prompts than those I had set. I noted these down and added them into the software, so activating different responses would be as easy as possible. This would have been overlooked had this area not been thourghly tested.

SOLUTION

FINAL APP

The final design addresses all of the goals outlined at earlier stages of the project.

Users can run vehicle self-checks to ensure all their car's vital fluids are at the correct levels. Should an anomaly in the levels be identified, users can follow the maintenance guides to top up their vehicles' fluids.

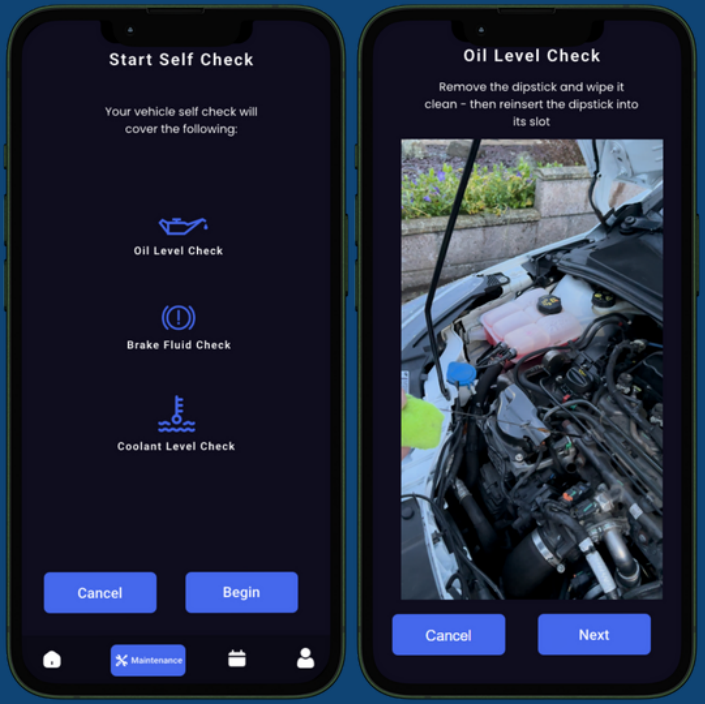
Users can track their vehicle stats on the Home page, areas such as MOT due dates and miles until next service.

The Calendar page allows users to create appointments at trusted garages for their vehicles and track them on the app.

My Profile simply allows a user to change their vehicle type, change personal details and see their current CarGuru rank.

The 'Guru' voice assistant provides the app with a unique user interaction.

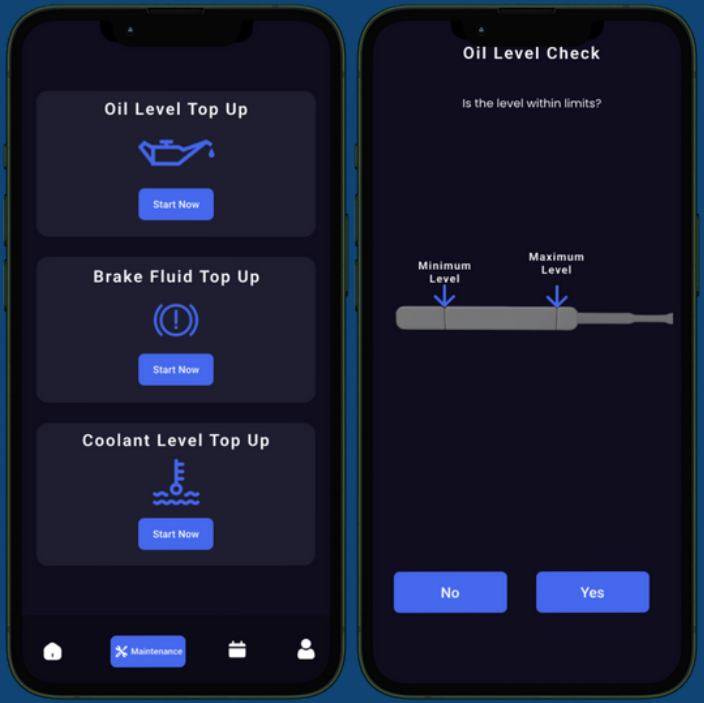
SELF CHECK



The vehicle self-checks are designed to be a simple process to keep on top of your vehicle's health.
The user is taken through step by step, checking oil level, brake fluid levels and coolant levels.

These areas are the primary focus as they are considered your engine's vitals.
Low oil will destroy an engine.
Low coolant will destroy an engine.
Low brake fluid can result in brake failure and a serious crash.

Maintaining these fluids at the correct levels ensures a safe and reliable vehicle. These fluids are also often the first indication of leaks in your engine, and if caught early, may only result in small, cheap repairs being needed rather than expensive ones.



MAINTENANCE GUIDE

Three full maintenance guide procedures are offered to the user:

- Oil Level Top Up
- Brake Fluid Top Up
- Coolant Level Top Up

The user can start one of these procedures manually or have it begin automatically if selected during a vehicle self-check.

A video with audio commentary is then played back to the user for them to follow.

Once the procedure is complete, the user can mark the level as correct and the procedure is complete.

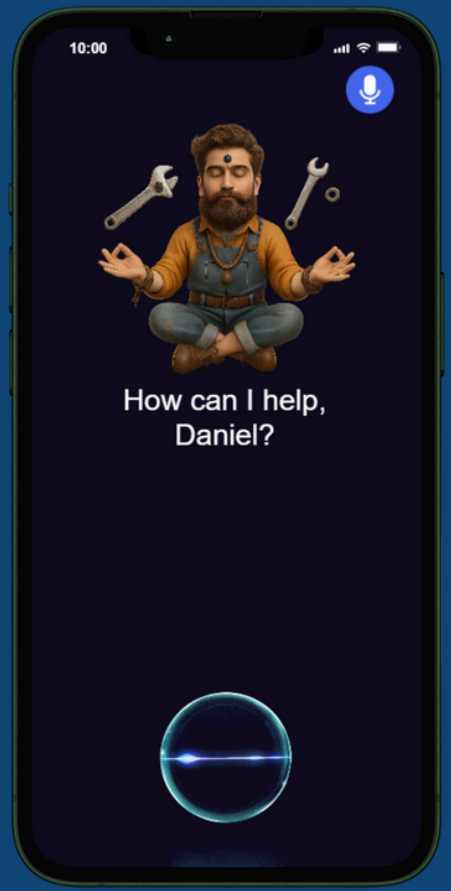
CALANDAR

The calandar/booking section of CarGuru allows users to:

- **Create a booking**
- **Choose booking type** - full service, MOT, brake service etc
- **Select Garage** - from trusted and paid garages listed on the app
- **Choose a date** - for the work to be done
- **Confirm the booking** - where the CarGuru's discount will be applied

Vehicle repair garages pay a small fee in order to be listed on the app. In turn, CarGuru provides a small discount when the user books vehicle repairs via the app (if they have been carrying out their regular self-checks).

This system results in more business for the garages and they can ensure the vehicles that are booked in to be worked on are well maintaned and have no underlying issues.



VOICE ASSISTANCE

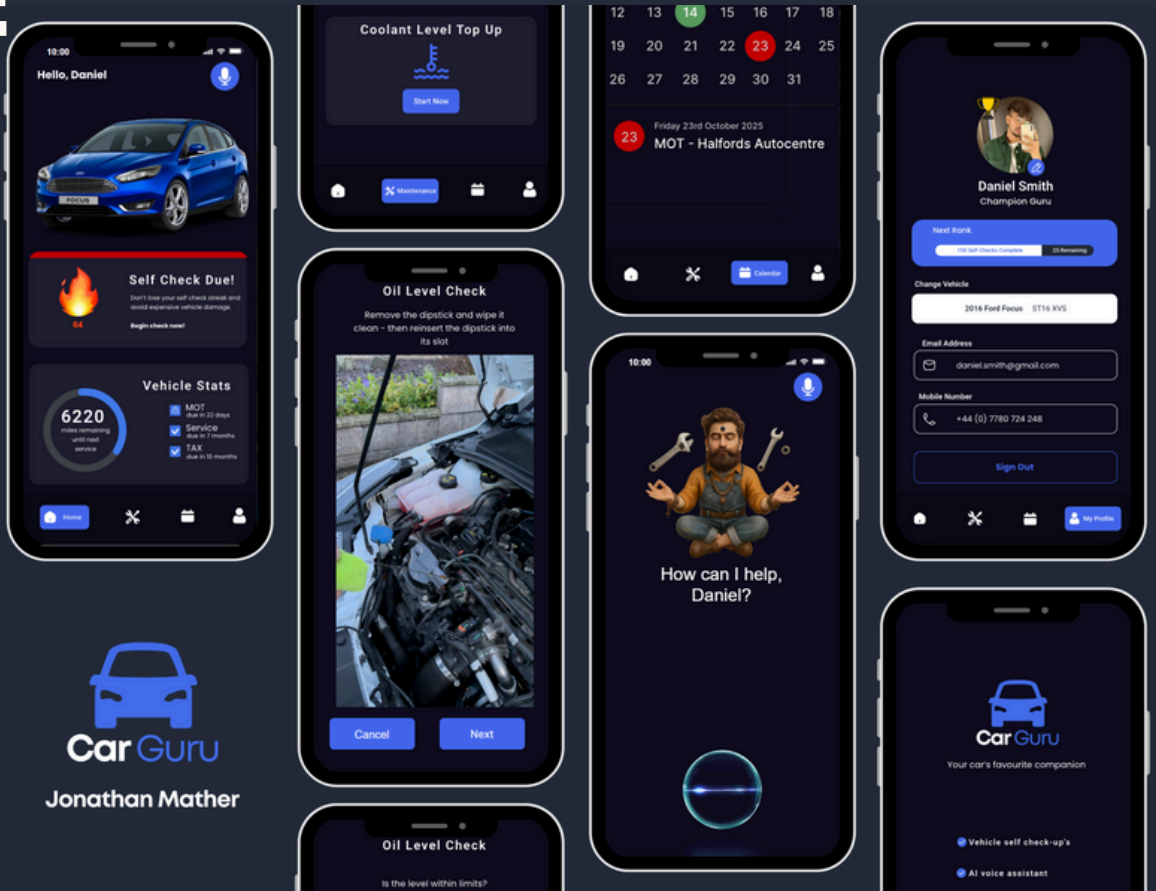
The AI chat assistant, called Guru, can be activated by pressing the microphone icon at the top right of the Home screen or by double-tapping on the Home screen.

This opens the AI assistant page and allows the user to ask questions such as:

- “What should my tyre pressure be?”
- “When is my MOT due?”
- “Why do I have to top up my coolant all the time?”

Guru will then respond to your query both audibly, and via text on the screen.

GREAT PICTURE ONE



CarGuru

Jonathan Mather

GREAT PICTURE TWO

VIDEO

Young driver opening the bonnet of their vehicle

Screenshot of the self check feature being used

Screenshot of young driver starting the self check on the CarGuru app

Vehicle driving away after self check complete

REFLECTION

I feel this project has helped me develop as a designer. Rather than rushing through the research and development phases with the goal of having a completed prototype as fast as possible, I slowed myself down and allowed time to make sure the outputs of my work were as high quality as possible. I have enjoyed working on a project in which I have a strong passion for, and tackling an issue which is very real with today's cost of living crisis.

Upon reflection, I would have liked to have spent more time taking the voice assistant to the next level. I am very happy with how the assistant turned out, but I enjoyed the process of perfecting it, and I feel this could be taken even further, perhaps with Chat GPT integration.

I'm glad I spent a good amount of time user testing at various stages so I could see clearly what was working about CarGuru and what wasn't. With a project like this, where I have strong knowledge of the subject, it is easy to skip steps or miss points out. I'm glad I refrained from doing this and instead ensured all aspects of the prototype were well tested by suitable users.

I'm very happy with how my project went, and I have certainly learned a lot from the process. These skills I will take forward into my career as a designer, and I will be forever grateful to my teaching staff and those who helped me along the way!