EE/CprE/SE 4920 WEEKLY REPORT 4
number: 44

Project title: FixIt

Client &/Advisor: Berk Gulmezoglu

Team Members/Role: Benjamin Muslic, Jonathan Duron, Mohammed Elaagip, William Griner

Weekly Summary

There have been many updates in the FixIt project. The project is coming together close to a prototype. Implemented a AI chatbot that takes in a pre-prompt of all the current users DTC code and relevant car information, explain to the users what is wrong.

Past week accomplishments

Benjamin Muslic

- Cleared out debug statements so that the console is more human readable

```
IP address: 192.168.0.11
Connected to ELM327
BLE service started
Performing DTC check in blocking mode...
Current DTCs found:
P0100
DTC Data sent via BLE: P0100
MIL is: OFF
DTC Data sent via BLE: MIL is: OFF
Current DTCs found:
P0100
DTC Data sent via BLE: P0100
Raw payload for coolant: 41053D
Coolant Temp (Manual Parse): 21.00 °C
DTC Data sent via BLE: Coolant (manual) = 21.00 °C
MIL is: OFF
```

- Modified code to send data via JSON format for easier handling

```
Connected to ELM327
BLE service started
Performing DTC check in blocking mode...
Current DTCs found:
P0100
DTC Data sent via BLE: P0100
DTC Data sent via BLE: {"dtcs":["P0100"],"coolant_temp_c":179,"check_engine_light":true}
DTC Data sent via BLE: {"dtcs":["P0100"],"coolant_temp_c":179,"check_engine_light":true}
DTC Data sent via BLE: {"dtcs":["P0100"],"coolant_temp_c":179,"check_engine_light":true}
DTC Data sent via BLE: {"dtcs":["P0100"],"coolant_temp_c":179,"check_engine_light":true}
DTC Data sent via BLE: {"dtcs":["P0100"],"coolant_temp_c":25,"check_engine_light":true}
DTC Data sent via BLE: {"dtcs":["P0100"],"coolant_temp_c":25,"check_engine_light":true}
DTC Data sent via BLE: {"dtcs":["P0100"],"coolant_temp_c":25,"check_engine_light":true}
```

- Added conditional if codes existed it would trigger the check engine light Boolean to true and the physical light on the emulator to light up.
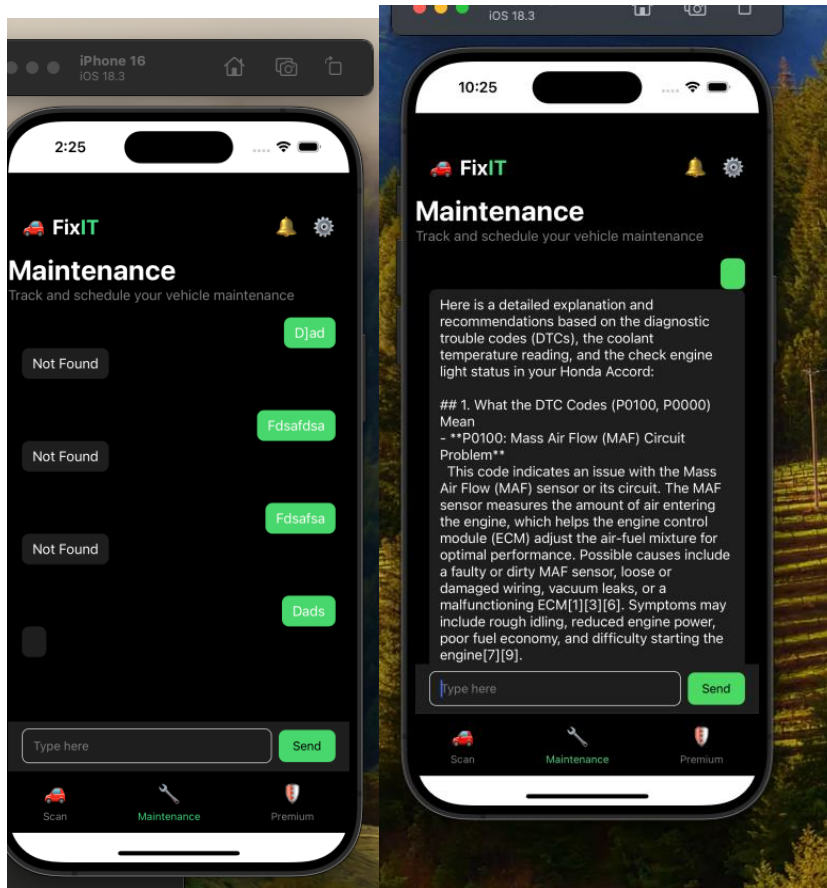

Jonathan Duron

- Integrated a basic chat box whenever the user has scanned a vehicle and has any questions on the vehicle they can easily communicate and ask questions customized to their own vehicle.
- Requested funding from ETG to fund the API call
- Designed Chat bot

Mohamed Elaagip

•Refactored global styling and improved responsiveness across multiple pages for mobile and tablet devices

•Worked with the team to connect dynamic vehicle data to the dashboard interface

•Contributed to user flow mapping and interface wireframes for the chatbot experience

William Griner

- Made updates to database schema to store new data about our users and their cars
- Made new API routes to store and retrieve our new data in and from our app
- added more in-depth logging to our lambda function that interacts with our database
- created a Cognito identity pool in AWS to manage user sign-in experience

Pending issues

o It seems that there are issues trying to read more than one DTC. The characters would be incorrectly parsed or there would be too many codes and cause a buffer overflow. This is a critical problem that hopefully we can fix.

```
Skipping invalid DTC:
DTC Data sent via BLE: {"dtcs":["P0100","P0000"],"coolant_temp_c":215,"check_engine_light":true}
Raw DTC response payload:
0080:4303010001711:01100000000000
codesFound = 4
Raw DTC: P0100
Valid DTC added: P0100
Raw DTC: P1:01
Rejected due to non-hex characters: P1:01
Raw DTC: P0000
Valid DTC added: P0000
Raw DTC:
Skipping invalid DTC:
DTC Data sent via BLE: {"dtcs":["P0100","P0000"],"coolant_temp_c":215,"check_engine_light":true}
```

```
ERROR: ELM_BUFFER_OVERFLOW
DTC Data sent via BLE: {"dtcs":[],"coolant_temp_c":215,"check_engine_light":false}
Raw DTC response payload:
00E0:4306010001201:017104010455042:42000
codesFound = 4
Received: 00E0:4306010001201:017104010455042:42000
ERROR: ELM_BUFFER_OVERFLOW
DTC Data sent via BLE: {"dtcs":[],"coolant_temp_c":215,"check_engine_light":false}
Raw DTC response payload:
00E0:4306010001201:017104010455042:42000
codesFound = 4
Received: 00E0:4306010001201:017104010455042:42000
ERROR: ELM_BUFFER_OVERFLOW
DTC Data sent via BLE: {"dtcs":[],"coolant_temp_c":215,"check_engine_light":false}
Raw DTC response payload:
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ERROR: ELM_BUFFER_OVERFLOW
DTC Data sent via BLE: {"dtcs":[],"coolant_temp_c":215,"check_engine_light":false}
```

o **Individual contributions**

NAME	Individual Contributions *(Quick list of contributions. This should be short.)*	Hours this week	HOURS cumulative
Benjamin Muslic	• JSON Data parsing • Output clearing	8	88
Jonathan Duron	• Frontend development • Designed basic Chatbot • Integrated Perplexity API call to the chat bot	8	88
Mohamed Elaagip	• Frontend optimization • Data mapping	8	88
William Griner	• Added new features to database • Updated backend to accommodate new database features • started to work on user-sign in	9	89

Plans for the upcoming week

Benjamin Muslic
- Figure out how to tap in ESP32 power into OBD emulator 12v and design a case to fit everything into one physical device
- Try to fix errors handing more than one code
- Continue collaborating with SW guys on how to improve HW so their tasks are easier

Mohamed Elaagip:
- Collaborate with team to ensure proper integration of dynamic data fetching
- Continue refining the application for a smoother and more seamless user experience
- Enhance UI by populating placeholder elements and optimizing layout consistency across pages

Jonathan Duron
- Fully implement reply chat bot where user can reply and get answers as well
- Store users conversation to cache file
- Save all of user's vehicle to cloud

William Griner
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