

EE/CprE/SE 491 WEEKLY REPORT 3

3/5/23 – 3/24/23

Group number: SDMAY23-14

Project title: Mobile Vehicle Security Bus

Client &/Advisor: John Potter &/ Joseph Zambreno

Team Members/Role:

- 1. Campbell, Ryan / Lead Developer**
- 2. Jansen, Levi / Developer**
- 3. Lawson, Riley / Developer**
- 4. Ridgeway, Drake / Developer**
- 5. Scehovic, Ryan / Lead Developer**
- 6. Stricker, Cody / Developer**
- 7. Torres, Josue (Josh) / Developer**

(All the above information should be there in each weekly report. The format/color scheme etc need not be the same. However, please remove everything that is in a bracket from your final submission. These are just part of the template and need not be a part of the report.)

- **Weekly Summary** (Short summary about what the group did for the week. This should be about a paragraph in length. These are just a few questions to help you get started. What was the overall objective for the week? In general, what tasks were completed? Were there any changes made to the project?)

This week we made progress on getting CAN message verification finalized. Cmac and counter validation is now working in the program. Efforts were made to set up an example of how an ECU would read the PGN value to detect messages as well. We also began updating our code to eventually get it to a point where it is ready to be demonstrated.

- **Past week accomplishments** (Please describe/summarize as to what was done, by whom, when and, collectively as a group. This should be about a paragraph or two in length. Bulleted points are acceptable as well. Please keep only your technical details related to your project. Figures, schematics, flow diagrams, pseudocode, and project related results are acceptable, but please ensure that they are legible (clear enough to read) and to provide an explanation. If researching a topic, please add a few details about what was learned and how it is relevant to the project. If two or more people worked on a single task, be sure to distinguish how each member contributed to the task. Specific details relating to the assistance provided to other members may be included here. **Do not include classwork, such as individual reflection assignments, and group meetings as part of your duties.**)

- Drake Ridgeway: Attended group meetings, helped fix CMAC errors, worked on creating an ECU program, ECU_1.py, got more familiar with PGN sniffing and bi-directionality
 - Riley Lawson: Helped with redesigning the groundwork for the new files for the new code along with identifying PGN errors and packet sniffing.
 - Cody Stricker: This week I worked on designing a simple set of tests for our CAN program, worked on a basic PGN sniffer for an example ECU, and organized the current code-base.
 - Levi Jansen: Attended team meetings, helped debug our program for unpacking CAN FD frames, got up to speed on our new file format and learned how PGN sniffing works.
 - Ryan Scehovic: I wrote code relating to validating the cmac tag and monotonic counter bytes included in our CAN FD frame. I also worked on the sending/receiving functionality that allows for the frames to be packed, sent, and unpacked. The last thing I worked on was incorporating the time stamps to make the simulation more realistic by taking the difference of two message time stamps to be the delay before they are sent.
- Ryan Campbell - Attended team meetings, helped fix the error we were having with receiving CMAC. Error was in PGN. Additionally helped get cmac and counter verify on the receiving end for CAN FD messages + debugged error messaging outputs for accepted /declined messages
- Josue Torres: I assisted with troubleshooting errors caused by the sending of CAN messages through the network. Also attended weekly meetings, and helped provide input into the goals of the project.
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- **Pending issues** *(If applicable: Were there any unexpected complications? Please elaborate.)*

With this week being the week after spring break, everyone was mostly available so no complications with schedules like previous weeks. Code fixes were easier this week as well.

- **Individual contributions** *(Creating this section is optional, but it is **Required to include the "Hours Worked for the Week" and their "Total Cumulative Hours" for the project for each member somewhere relevant in your report. Your individual weekly hours should be at a minimum of 6-8 hours for this course. So please manage your time well. Also, ensure that individual contributions support your claim to the weekly hours. Be honest with the reports.***)

NAME	Individual Contributions <i>(Quick list of contributions. This should</i>	Hours this week	HOURS cumulative
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	<i>be short.)</i>		
Campbell, Ryan	Debug code for new ECU CAN message receive, counter / cmac verify, error messages.	10	66
Jansen, Levi	Remaining work decomposition, debugging our program for unpacking CAN FD frames	6	36
Lawson, Riley	Helped with the separation and renaming of receiveFrames, packFrames, and getFrames.	6	38
Ridgeway, Drake	Worked on ECU code, helped debug some programs, helped with bi-directionality	8	38
Scehovic, Ryan	Time stamps, packing/unpacking, and validating CMAC tag and counter from FD frame	14	74
Stricker, Cody	Worked on ECU code, designed a few helper programs for testing. Minor organization of code base	10	40
Torres, Josue (Josh)	Compilation error troubleshooting, and end of project goals.	6	31

○ **Comments and extended discussion** *(Optional)*

From here, we have to be able to get Vcan2 communicating effectively with our ECU. We also have an option once that is working to get bi-directional communication.

○ **Plans for the upcoming week** *(Please describe duties for the upcoming week for each member. What is(are) the task(s)? Who will contribute to it? Be as concise as possible.)* •

Drake Ridgeway: Work on figuring out bi-directionality and ECU communication

- Riley Lawson: Work on figuring out how to solve our bi-directionality problem and help solve additional problems relating to the multi-threading of the ECU.
- Josue Torres: Strive to help create a working demonstration of our project. Also try to work on sending and receiving messages between two CAN nodes.
- Cody Stricker: Working on bi-directional CAN communication as well as creating programs to serve as demos for the final presentation.
- Levi Jansen: Work off of Cody's code to simulate multiple ECUs, help with bi-directionality issues.
- Ryan Campbell: Wrapping things up, get a nice demonstration that we have a round trip

that we can send messages from vcan0 to vcan1 and vice-versa, and make sure the messages go to the right ECUs.

- Ryan Scehovic: To work on the simulation being full circle - we want the program to efficiently read and write to the proper vcan network.

- **Summary of weekly advisor meeting** *(If applicable/optional)*

This week, John gave us some great information about communication with the ECU and told us about bi-directionality. It's not a requirement to have, but it is a nice added element if we get everything working. Other than that, we need to clean up our existing code to look presentable and start creating our final presentation.

Grading criteria

Each weekly report is worth 10 points. Scores will be awarded as follows:

- **8 – 10:** Progress for your project seems to be suitable. Documentation and hours reported by team members are adequate.
- **6 – 8:** There is scope of improvement both in your report and your project progress. Can consult with instructor/TA after class for further inputs.
- **< 6:** Please talk to instructors/TA after class hours about any difficulties that you/your team is facing.

Each weekly report should be unique in that they have a unique set of supporting details for your contributions. So please do not just copy your reports from the previous week. In addition, please avoid any personal pronouns (he, she, I, you). Try to keep your reports as neat as possible.