Fine-tuned LLM for embedded C & Autosar coding assistant

AUMOVIO

AUMOVIO (formerly Continental Automotive Technologies) is one of the worlds leading partners for electronic and software solutions in the automotive industry. Four business areas offer components, functions and solutions that make mobility safer, more exciting, connected and autonomous. **Architecture and Network Solutions** is one of these business areas and empowers OEMs in the shift to Software-defined vehicles, replacing static, hardware-bound systems with flexible, software-driven architectures. The portfolio—High Performance Computer (HPC), zone controllers, telematics, edge ECUs, and software—adds value across the vehicle lifecycle, enabling continuous updates and learning in connected vehicles.

Requirements for the start-up

We are looking for start-ups that have experience with Generative AI and Machine Learning, ideally with preparing the data and fine-tuning Large Language Models for specific tasks.

Framework of cooperation

The cooperation is seeking for a co-creation of the solution.
The financial cooperation is planned to be agreed on once the options for cooperation are aligned and the level of duration and engagement is clarified.
All used input from AUMOVIO, as well the result of the cooperation will remain within AUMOVIO.

The challenge

The challenge is about increasing efficiency in software development using GenAI tools tailored for Automotive.
Current LLMs were trained on publicly available data, without having had access to enough automotive C and Autosar code.
Having LLMs fine-tuned with automotive code will increase the relevance of the output for the Automotive industry.
Even though AUMOVIO has the required data, we are looking to increase the needed AI competencies to pre-process the data and fine-tune the model.
Since we are dealing with proprietary code, we will provide the environment, as well as the fine-tuned model will remain the property of AUMOVIO.

The objective

The objective is to increase the efficiency of software development in Automotive.
At the end of the challenge, the minimum Viable Product shall be evaluated and compared with state of the art non fine-tuned models.
Technical KPIs may be considered such as: Improving the precision and recall on Automotive dataset of one state-of-the art open-source LLM.
The challenge does not have in focus a full fine-tuning. Instead, we are looking for a parameter efficient fine-tuning solution.
As well the fine-tuning is not planned to be on a commercial model.

The framework

The fine-tuned model shall be runnable with VLLM.
The used data, including fine-tuned models, must remain within the AUMOVIO IT environment.
The fine-tuned model shall generate better[1)] C and Autosar code compared with state-of-the art general purpose LLMs.
The fine-tuned model shall answer quick enough[1)] to be usable as a coding assistant.

[1)] Definition done by the startup and AUMOVIO at the beginning of the challenge