SERVICE DE METROLOGIE NUCLEAIRE
INDUSTRIAL RISK

MASTER THESES

Academic year **2022-2023**

Improving the IoT Car backend Cloud Volkswagen incident Resolution performance using a Failure Mode Effect Analysis strategy (in collaboration with CARIAD)

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For master thesis and internship

ABOUT CARIAD

We are CARIAD, an automotive software company and part of the Volkswagen Group. Our mission is to make the automotive experience safer, more sustainable, more comfortable, more digital, and more fun. Soon, we'll be a team of more than 5,000 software developers and engineers, building the leading tech stack for the automotive industry and creating a unified software platform for over 10 million new vehicles per year. We're looking for talented, digital minds like you to help us create code that moves the world. Together with you, we'll build outstanding digital experiences and products for all Volkswagen Group brands that will transform mobility. Join us as we shape the future of the car and everyone around it.

YOUR TEAM

Our interdisciplinary team "Engineering Cross Functions" jointly works on running and refining existing on premise and cloud backend solutions, as well as implementing new and innovative functions and services. Delivering outstanding customer satisfaction is our primary objective. Our operations model is based on a DevOps / System of Systems culture.

We are looking for self-motivated, self-reliant and flexible interns with a pioneering and innovative spirit to support our team.

WORK DESCRIPTION

In order to improve our performances, we are constantly improving our products and processes.

The basic services that we are delivering are function like remote lock and unlock, Remote Auxiliary Heating so as Remote Car update. All the functionalities that are shaping the mobility of tomorrow and supporting the autonomous driving.

One focus of our team is to restore the services as soon as possible in case of incidents on the System.

To do so, we want to improve the knowledge base of our Architecture and provide to the different teams a better Overview of our System for outstanding Troubleshooting performance. We want moreover to identify weak points in the Software architecture to avoid incidents by improving the system resiliency.

In this context, you will be the Project lead for the implementation of the Reliability, Availability, Maintainability and Safety (RAMS) methodology in the cloud backend. Your main tasks will be:

- Gather the architecture information among the different product teams and DevOps teams and understand the big picture
- Develop the Failure Mode Effect Analysis (FMEA) Methodology inside the organization by:
    - Failure Tree and Event Tree standard description
    - Build the E2E FMEA documentation for the product portfolio together with the product team
    - Identify weak points and possible improvements in the architecture
    - Define the lifecycle management of the FMEA documentation inside the organization

It is possible to extend the internship with a master thesis.

WHO YOU ARE

- Enrolled student (or bachelor's graduate starting master's degree program as soon as possible) in the engineering or computer science areas
- Affinity with IoT Cloud Infrastructure and interest in the automobile sector
- Want to work in a Start-up culture and able to start a project from Scratch
- Strong analytical understanding, ability to work in a team, above-average commitment and flexibility, structured and independent work
- Fluent communication skills in English (written and spoken)

NICE TO KNOW

- Internship
    - Duration: 3 to 6+ months
    - 35-hour weeks
    - Extendable for Master Thesis
- Working Student
- Location: Munich Area - Ingolstadt