How Husqvarna automated its code review process to avoid a catastrophic situation with their electric products.

Since 1689, the Husqvarna Group has used its expertise to create solutions for garden products. Today, Husqvarna is a world-leading manufacturer of outdoor power products. To ensure that the products live up to the modern security requirements, Husqvarna has chosen to implement the CodeSonar tool, a static code analysis tool that makes it easier for their developers to avoid security flaws when developing software.

The Drive systems department develops control electronics for Husqvarna's handheld products. Together with the Construction division, both departments decided in 2019 to start working with safe software, software that is certified to be safe for a user. That's how they came in contact with Nohau, which provided the CodeSonar tool.

Markus Fransson, Head of Drive Systems, emphasizes the importance of static code analysis, "Developing secure code is fundamental to ensure that our products work as expected," he goes on to point out that a device error due to a vulnerability or a problem in the software code can lead to Husqvarna's electric products not working as they should, which can lead to direct damage to consumers. The electrical products are therefore certified, for example, by not exceeding a certain speed and are regulated to always stop at a certain time.

Higher requirements for the verification process

Husqvarna is in the middle of a gigantic shift to robotics, digitization and electrification. This development also means higher demands on their verification process. "Today we have higher requirements to follow standards for certifying our tools than we had a few years ago and even stricter standards for what the software should look like." Says Mark. There is simply a greater focus on producing even safer products on the market. Husqvarna will continue to expand lawn and battery solutions with smart technology, including through developments in robotics and artificial intelligence.

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Among other things, they have launched an AI-enabled robotic lawnmower with AWD. A robotic lawnmower with four-wheel drive and connection to smart homes. It is a completely autonomous robotic lawnmower designed to cope with uneven terrain and slopes with a slope of up to 70%, and works with Amazon Alexa, Google Home and provides an open API for integrating smart homes.

A powerful and potent tool

When Markus Fransson's team examined tools for static code analysis, they chose between SonarQube and CodeSonar, in the end they chose to move on with CodeSonar from GrammaTech. "We feel that Grammatech's tool was much more competent in the aspect that it allows us to examine third-party binaries, that is, software that we purchase. That was an important aspect of the whole thing." He points out.

Another advantage of CodeSonar is that the tool in an educational way tells you what's wrong. When you see an error, you get it explained by the tool in a clear way. "CodeSonar presents the whole picture of the problem, and not just the small hole that is leaking. It is a component that is missing with many other tools, where I as a user have to find out for myself why an error occurs." Mark clarifies.

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As a result of good experience with the tool, CodeSonar is now increasingly being used in the department and reviews almost all of their coding rules. Husqvarna will continue to explore the tool even more and deepen their knowledge of it.
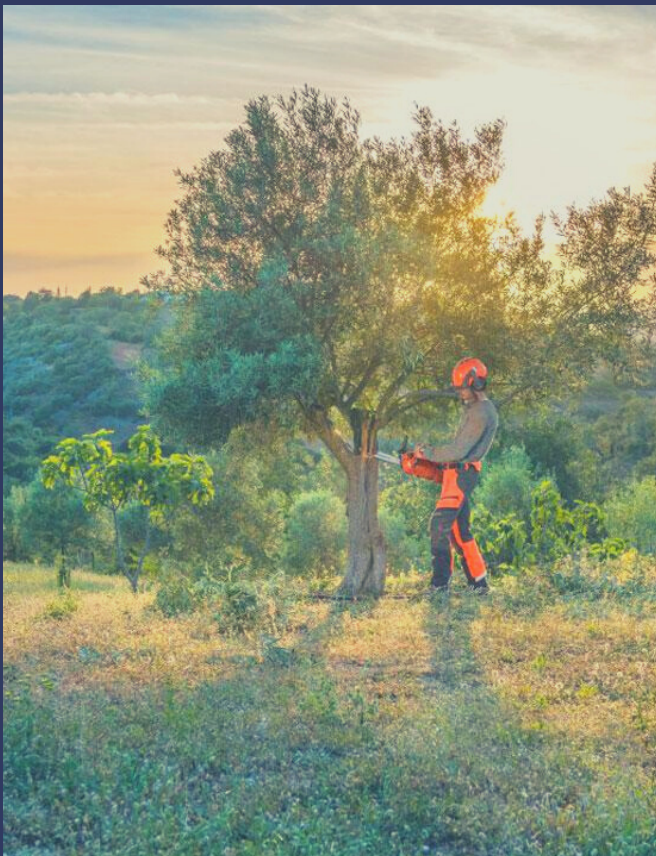
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