



Project: PiDome

Location: Delft/Amstelveen,
Netherlands

Url: <http://pidome.org>

Industry: Electronics &
Home Automation

Oracle Products & Services:

- NetBeans IDE
- Java SE Embedded
- JavaFX
- Java VisualVM

Related Software:

- BitBucket
- NetBeans Android
- Ant
- Jenkins

PIDOME

“NetBeans IDE is easy and intuitive to use. It has helped in learning the Java language, while also providing all the productivity tools we need, such as a fullblown Profiler, powerful tools for deployment to the Raspberry Pi, and native integration with the Mercurial version control system.”

Executive Summary

PiDome is a free and open source home automation environment that provides a framework for delivering all the minimal requirements to use the Raspberry Pi as a home automation server.

All the libraries needed to communicate with the hardware are included and a user can define their devices with a few lines of XML. The server includes powerful functionality, such as a trigger and macro system and a visual floor planner, while being able to keep track of user presence, day parts, and JSON streams for third party developers.

The Business Issue

- The development of the PiDome platform can sometimes be quite challenging because there are a lot of custom dependencies and multiple technologies used.
- The development team requires an editor and a development environment that combines the disparate dependencies and technologies within a coherent system.
- A development environment was needed to help the development team learn the Java language because this project was the first completely written in Java.

Key Challenges

- Have a helpful tool to assist in learning the Java language.
- Have a fast and responsive editor that supports many different languages, in addition to Java, such as XML and JSON.
- Good support for version control management, with BitBucket integration.
- Good debugging and profiling support, with support for build servers, such as Jenkins.

Solution

- The solution was to use NetBeans as the development team's editor because it has native support for a lot of the development languages used by the development team, including HTML5, CSS3, JavaScript, XML, XSL, Java 8, JavaFX 8, and Android via the NetBeans Android plugin.
- The integration of NetBeans with Mercurial, which the development team uses as their versioning system, is considered to be very good and the Diff

tools that are part of NetBeans are appreciated and frequently used by the development team.

- The development team finds the project-based library system in NetBeans useful. When they change the code in a library, the change is instantly reflected in all the projects that make use of it, without the need to recompile those projects first. Especially since the PiDome project consists of many small projects, this feature in NetBeans is very useful.
- To deliver a stable environment, the development team needs a good debugger and good profiling support. As the project runs on the Raspberry Pi, the development team makes use of the tools in NetBeans to debug, profile, and monitor the application running on the Raspberry Pi from their local Windows development computers.
- The Jenkins integration in NetBeans is considered to be very useful. When the team pushes their code to the remote versioning system, Jenkins is triggered to retrieve the code and build the application. When the building is done, the team is notified in NetBeans about the project build status and test results. If there are any failed tests, the team can open these and instantly jump to the offending line of code, which really speeds up debugging.

Business Value

- All in all, NetBeans helps the team to focus on what they need to create, instead of on how to do so. In the end, the simplicity and ease of use provided by NetBeans saves the team time and enables them to do their work more quickly.
- NetBeans is free. Without any funding or external donations, the team has access to enterprise-level development tools in NetBeans IDE that work out of the box and cover all their needs.

Credits:

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