

FASTDash: A Visual Dashboard for Fostering Awareness in Software Teams

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PROJECT DESCRIPTION

Software developers spend a significant amount of time gaining and maintaining an awareness of fellow developers' activities. FASTDash is a new interactive visualization of software development team activity. This visualization provides a spatial representation of the shared code base overlaid with information about team members' current activities. The visualization can also be collaboratively annotated, allowing developers to supplement activity information with additional status details. Further, it provides immediate awareness of conflict situations, such as if two users have checked out and are editing the same source file.

FEATURES

Shown in Figure 1, the visualization provides programmers several pieces of key information to enhance awareness of group development activities. At the foundation level is a spatial representation of the project's code base; this is implemented as a modified squarified treemap. Within the representation, folders are visualized as nested rectangles; the size of the rectangle is based on the number of files contained in the folder. Files are represented in the visualization as small tiles that contain a file's name and icon.

Two types of development activities are shown overlaid on the spatial representation: *active file actions* and *source repository actions*.

Active file actions are based on the programmer's activity within his or her IDE session. Active file information includes which files are open and by what programmer (files with a blue highlight), if those files are currently being edited (yellow highlight), which file the programmer is currently working on (thick border on highlight), which development mode the programmer is in (ruby border for debug, gold for edit), and, if available and appropriate, which method or class the programmer is currently editing/viewing/debugging.

Source repository actions are based on the programmers' activity within the project's source repository system. Source repository information includes identifying which files are

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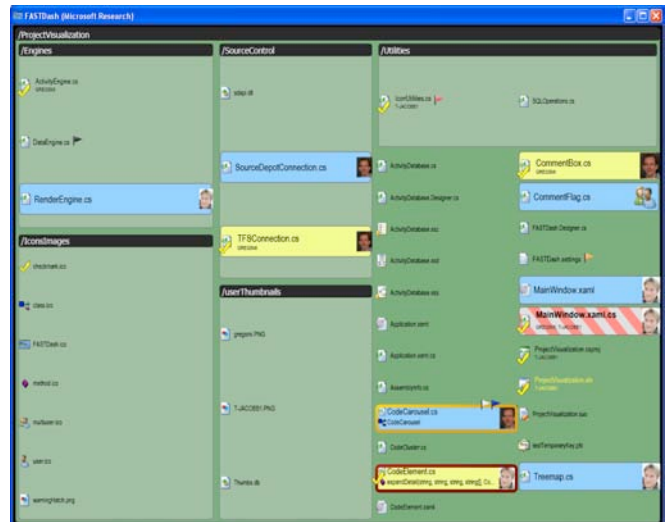


Figure 1: The FASTDash visualization runtime showing two programmers working inside a project's code base.

checked out and whom they are checked out to (checkmark on files), if the checked out files are different from what is currently in the repository (yellow file label), and if there are potential check out conflicts (red and white hash highlight).

In addition to the development activities, the visualization also allows programmers to attach comments to specific files. Markers to existing comments are shown as flags near the file's name. Programmers can view or edit a comment by clicking on its comment flag. New comments can be added by right-clicking on a particular file.

USAGE AND EARLY FEEDBACK

FASTDash is designed to be a tool that is effective on both a large screen in a shared workspace (commonly found in workspaces used by Agile programming teams), as well as the programmers' personal workstations.

We installed FASTDash within a project team at Microsoft and early feedback from the use of our tool is positive. Programmers report the information provided by the visualization is both useful and appropriate for their work practices. They also reported feeling more aware of the actions of their fellow programmers when using the tool.