

Recovering Feature Knowledge: The Case of Software-Hosting Platforms

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Feature-Oriented Software Development Meeting 12-15 March 2019 | Weimar, Germany

Jacob Krüger, Mukelabai Mukelabai, Wanzi Gu, Hui Shen, Regina Hebig, Thorsten Berger: Where is my Feature and What is it About? A Case Study on Recovering Feature Facets

wwwiti.cs.uni-magdeburg.de/iti_db/publikationen/ps/auto/KruegerMG+19:JSS:FeatureRecovery.pdf



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Motivation

Contributing to Marlin

Click on the Issue Queue and Pull Requests links above at any time to see what we're currently working on.

To submit patches and new features for Marlin 2.0 check out the bugfix-2.0.x branch, add your commits, and submit a Pull Request back to the bugfix-2.0.x branch. Once 2.0.x has been certified for a critical mass of common 32-bit boards, it will become the next major release and will be the basis for all future major and minor releases.

Note that our "bugfix" branches always contain the latest patches and new code. These patches may not be widely tested. As always, when using "nightly" builds of Marlin, proceed with full caution.

Marlin Resources

- Marlin Home Page The Marlin Documentation Project. Help us expand this site!
- @MarlinFirmware on Twitter Follow for news, release alerts, and tips & tricks. (Maintained by @thinkyhead.)

Marlin User Support

Looking for help? Our GitHub Issue Queue is only for development-related issues, feature requests, and bug reports. But there are several places where you can get help from experienced users:

- RepRap.org Marlin Forum
- "Marlin Firmware" Facebook Group

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Recovering Feature Knowledge



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Need to properly initialise PWM fan pins with #13357 opened 13 hours ago by pinchies	hen used with STM32F1 🗸 🗛 STM32F 🛛	PR: Bug Fix	Ç 25
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Motivation

RFC	, PoC] Support for DGUS LCD Displays #13253	New issue
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۰.	coldtobi commented 18 days ago • edited +	Reviewers
	Description	
	I've bought myself one of those displays and as so like to see them officially supported I started to hack on it. however, I'd like to avoid that my design decision collide with the way of things are done in Marlin, I'd lik to obtain a bit feedback before making it feature complete. Bear with me, this is my first major contribution	e No one assigned
	to Marlin, so if I missed obvious stuff, please sure to let me know ;-)	Labels
	As indicated in the title, the state of my implementation is at PoC. It works and I can already perform basics tasks with it, but there is still a lot missing and clearly it is not yet ready to be merged.	C: LCD & Controllers PR: New Feature



- Analysis of two subjects
 - Marlin
 - Bitcoin-wallet
- Identifying & analyzing information sources

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ExtUl Mesh Leveling Extensions #13363 opened 4 hours ago by InsanityAutomation			
Need to properly initialise PWM fan pins w #13357 opened 13 hours ago by pinchies	when used with STM32F1 - A: STM32F	PR: Bug Fix	ÇD 25
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- Analysis of two subjects
 - Marlin
 - Bitcoin-wallet
- Identifying & analyzing information sources
- Case study on
 - RQ_1 Feature development process
 - RQ_2 Feature identification and location
 - RQ₃ Search strategies for feature location
 - RQ_4 Information sources for feature facets

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- Manual analysis in teams
- Artifacts for each system
 - Feature fact sheets
 - Annotated source code
 - Feature model
- https://bitbucket.org/rhebig/jss2018/



Results

• Feature development process in Marlin





• Feature development process in Marlin



- Information sources for feature identification and location (Marlin):
 - Domain knowledge (6 optional; 13 mandatory)
 - Release log (24; 1)
 - #ifdef (30; 0)
 - G-Codes (1; 4)
 - Code analysis (6; 12)



• Information sources for feature facets (Bitcoin-wallet)





Conclusion

- Analysis of two subjects on a software-hosting platform
 - Feature-development process
 - Various information sources helpful to recover feature knowledge
 - Potential to improve automated knowledge recovery
- Provide artifacts for further analyses
 - Compare different systems, versions, and evolution
 - Evaluate feature location techniques
 - Analyze further development processes



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Co-located with SPLC 2019, 9-13 September 2019, Paris, France

https://sites.google.com/view/varivolution2019/home



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