

**sdmay18-09: Tool Support for Continuous Model-Based Verification of the Linux Kernel**

Week 1 Report

January 5 – January 26

Client: Suraj Kothari

Faculty Adviser: Suraj Kothari

**Team Members:**

Srinivas Dhanwada – Team Lead

Collin McIntyre – Tool Integration Lead

Benjamin Weno – Automation Lead

Matthew Wall – Web Lead

**Summary of Progress this Report**

With winter break taking place between our last status report and now, we haven't had much of a chance to get together as a team to continue working on our project this semester. That said, each of our members has completed portions of their own work, and we've also established a plan for how to operate this semester. We've contacted our Adviser to set up our weekly meetings and are currently waiting for a response. We've also investigated platforms that we can use for testing and have decided that GitLab CI is our preferred testing infrastructure. We've continued working on the patch generation algorithm and are now able to generate the full patched header files for mutex locks as well as identify which spin lock functions we need to consider when generating the patch. Our RSS feed monitor has also been modified to download the newest version of the Linux kernel when it's released. Lastly, we've also continued implementing the back end of our website, but need to know exactly what format the data from the kernel verifier will be in before we can continue with the back end.

**Pending Issues**

The current format of the data we need to send to the website is unknown. We need to work with our adviser to learn what format this data will be in.

**Plans for Upcoming Reporting Period**

We plan to begin integrating GitLab CI into our workflow so we can begin extensive testing on our software. We also plan to finish header file generation in the patch generation algorithm and begin removal of non-patched function declarations/implementations. Lastly, we also plan to receive information about the format the data from the verifier will be in so we can continue implementation of the website backend.

**Individual Contributions**

Team Member	Contribution	Hours This Period	Total Hours
Srinivas Dhanwada	Srinu identified GitLab CI as the testing platform we should use to test our code for each step in the pipeline as well as the pipeline as a whole. He also identified the	7	88

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	format we should use to display mappings of locking instances from one version of the kernel to another.		
Collin McIntyre	Collin continued working on the patch generation algorithm which is now able to generate a patched header file for mutex locks and can identify which spinlock functions need to be patched.	10	69.5
Benjamin Weno	Ben modified the utility code for checking for new releases of the kernel to now be able to download the newest kernel from GitHub when a new version is released.	5	45
Matthew Wall	Matt has continued using Angular and Typescript to implement the back end of our website. Matt is also now using firebase and is integrating it into his current setup using Angularfire2. He's also begun creating the front end of the website using his concept sketches from earlier in the project.	8	42.5