

# Name in progress...

Michael Frank  
michael.frank@stud.hs-flensburg.de  
Hochschule Flensburg  
Flensburg, Schleswig-Holstein, Deutschland

Nico Hohm  
nico.hohm@stud.hs-flensburg.de  
Hochschule Flensburg  
Flensburg, Schleswig-Holstein, Deutschland

## ABSTRACT

Abstract in progress ...

## KEYWORDS

Open source development, Open source, Software development, Development initiative, Browser extension, Chrome extension, GitHub, Blockchain, Ethereum

## 1 INTRODUCTION

### 1.1 Open source development on GitHub

Open source development is a type of software development in which a decentralised and collaborative community develops software publicly and transparently. Open source development enables the creation of innovative and free software through the collaboration of many people, and it also provides free access to the software for everyone [7, 8]. Some examples for such significant projects are the Linux Kernel [9] and the Mozilla Firefox browser [5], which are used by many people every day. A particular difficulty in open source development is the coordination of the many developers who contribute to the development of the projects with their own extensions or improvements. Changes have to be tracked, traced and, if necessary, reversed [8]. These problems occur not only in open source development, but also in normal software development. As in normal software development, version control is used to solve these problems [8, 10].

In particular, the version control protocol Git is ideally for open source development, because with Git it is possible to have several distributed remotes that can access and manage the same source code [1, 10]. Projects that are coordinated via git are called repositories. The developers have a local copy of the repository on their systems and can push their changes to or pull the current status from the main repository. These actions are coordinated via a so-called git server, which has to be hosted somewhere so that the developers can work with it [1]. It is important that this server is permanently accessible, otherwise the actions mentioned will no longer work. and coordination of the repository will be interrupted [10]. Hosting services such as GitHub were created so that such problems can be prevented and not everyone has to set up their

own git server if they want to start an open source project [2, 10]. GitHub is the largest git hosting provider today, with over 56 million registered developers and over 100 million repositories. [2] The service is also used by large IT corporations such as Microsoft, Facebook and Google and hosts a large number of the largest and most important open source repositories [3].

Normally, an open source project on GitHub starts with a user creating a repository for it. The user who created the repository is the owner of it. This user has full control over the repository and can push changes, decide which changes are accepted (merged) and even delete the repository. In addition, he can add so-called collaborators to the repository, who have read and write rights in the repository [4]. Normal users who do not have collaboration rights can contribute to the open source project by creating a pull request with their change. Another user with the necessary rights can then decide whether the change is useful or not. Depending on his decision, he can merge (accept) or reject (reject) the changes. The described process is the typical approach to how the community develops for an open source project.

### 1.2 Problem

The described workflow for managing repositories on GitHub but also on other hosting services such as GitLab or Bitbucket has some significant disadvantages. Firstly this approach is not necessarily decentralised or democratic. Very few people usually have the necessary rights to merge pull requests, and they can decide over the head of the general community whether to merge or reject a pull request. So it doesn't matter what the general community thinks, as long as the administrators have a different opinion. Rejecting good or useful pull requests is bad, but not a direct threat to the project. The opposite is to merge a critical bug into the main repository, which can cause enormous damage, as in the example of the Heartbleed bug in the Open SSL repository [6]. This danger exists mainly because it only takes one person with the necessary rights to overlook the bug and decide to merge the flawed pull request. A less critical problem, but one that affects many of the open source repositories that are not supported by companies or large communities, is the lack of funding and thus further development. Many projects live on developers who work on these projects in their spare time, which means that further development and maintenance of this repositories can sometimes stagnate or even cease completely.

### 1.3 Solution

## 2 RELATED WORK

Related work falls into three areas: - Drei Bereiche, Governing, Voting, Initiative - Torbens (Dezentralisierter Ansatz) - GOVERNING OPEN SOURCE SOFTWARE THROUGH COORDINATION

---

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from [permissions@acm.org](mailto:permissions@acm.org).

Conference'17, July 2017, Washington, DC, USA

© 2021 Association for Computing Machinery.

ACM ISBN 978-x-xxxx-xxxx-x/YY/MM...\$15.00

<https://doi.org/10.1145/nnnnnnnn.nnnnnnnn>

PROCESSES - Bounties in Open Source Development on GitHub:  
A Case Study of Bountysource Bounties

### 3 PROTOCOL

- Wieso gibt es zwei Protokolle?

#### 3.1 First iteration

- Jeder konnte ein Voting starten - Voting ohne Kommentar - Bild des Protocolls

#### 3.2 Second iteration

- Admin starten Bounty - Restliches Protocl

### 4 IMPLEMENTATION

### 5 DISCUSSION

- Was sehe ich für Probleme

### 6 CONCLUSION AND FUTURE WORK

- Anbindung an Torbens

### REFERENCES

- [1] [n.d.]. Git scm. <https://git-scm.com/> [Online; Retrieved 20.02.2021].
- [2] [n.d.]. GitHub about. <https://github.com> [Online; Retrieved 20.02.2021].
- [3] [n.d.]. Gitstar Ranking. <https://gitstar-ranking.com/> [Online; Retrieved 20.02.2021].
- [4] [n.d.]. Permission levels for a user account repository. <https://docs.github.com/en/github/setting-up-and-managing-your-github-user-account/permission-levels-for-a-user-account-repository> [Online; Retrieved 20.02.2021].
- [5] MDN Web Docs. [n.d.]. Contributing to the Mozilla code base. [https://developer.mozilla.org/en-US/docs/Mozilla/Developer\\_guide/Introduction](https://developer.mozilla.org/en-US/docs/Mozilla/Developer_guide/Introduction) [Online; Retrieved 20.02.2021].
- [6] Melissa Iori. [n.d.]. Heartbleed Keeps Flowing-Open Source Security. ([n. d.]).
- [7] Redhat. [n.d.]. What is open source? <https://www.redhat.com/en/topics/open-source/what-is-open-source> [Online; Retrieved 20.02.2021].
- [8] Maha Shaikh and Ola Henfridsson. 2017. Governing open source software through coordination processes. *Information and Organization* 27, 2 (2017), 116–135.
- [9] torvalds. [n.d.]. GitHub repository of the linux kernel. <https://github.com/torvalds/linux> [Online; Retrieved 20.02.2021].
- [10] Torben Ulrich. [n.d.]. Development of a blockchain based access control protocol for GitHub repositories as Open-Source project. ([n. d.]).