| Project Name | |
|---|---|
| **Online team meeting** | https://fau.zoom-x.de/j/67054574883?pwd=d1hjWHcyREZnK3lrb25nN1VBNDVBQT09 |
| **Production system (if any)** | ... |
| **Test system (if any)** | ... |
| **GitHub repository** | https://github.com/amosproj/amos2023ws03-gui-frame-diff |
| **GitHub feature board** | https://github.com/orgs/amosproj/projects/27/views/2 |
| **GitHub impediments backlog** | https://github.com/orgs/amosproj/projects/37 |
| **Team T-shirt (white)** | https://www.shirtinator.de/s/yUTG2wN7RPi5Ynir3Ch2Ig |
| **Team T-shirt (black)** | https://www.shirtinator.de/s/-tG1TSIMTuO9R0fVzbDHlQ |
| **Additional materials** | ... |

| Last Name | First Name | GitHub User Name | Email Address | (Probable) Regular Availability | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|---|---|---|---|
| Frieß | Tobias | Freeze-FF | tobias.friess@fau.de | | | | | | |
| Günther | Luis | zino212 | luis.guenther@fu-berlin.de | | Afternoon | If Urgent | Whole Day | If Urgent | Afternoon |
| Kilicaslan | Alper | AlperK61 | alper.kilicaslan@fau.de | | from 5pm | from 5pm | Whole Day | Whole Day | till 9am \| from 5pm |
| Kriese | Anton | akriese | anton.kriese@fu-berlin.de | | Whole Day | Afternoon | from 4pm | Afternoon | from 5pm |
| Kurz | Noah | Noah-Kurz | noah.kurz@fau.de | | If Urgent | Afternoon | Whole Day | If Urgent | If Urgent |
| Mechs | Lukas | lukas-monet | lukas.mechs@fau.de | | | | | | |
| Novotnyy | Petro | a-miscellaneous | petro.novotnyy@campus.tu-berlin.de | | Unlikely | Unlikely | Whole Day | Afternoon | Afternoon |
| Sasse | Simon | simonsasse | simon.sasse@fu-berlin.de | | Whole Day | If urgent | After Meetings | If Urgent | if urgent |
| Seitz | Fabian | fs3itz | fabian.seitz@fau.de | | If Urgent from 6pm | Whole Day | Whole Day | If Urgent from 6pm | Unlikely |

| # | Meeting Day | Product Owner | Software Developer | Release Manager | Scrum Master | Comment |
|---|---|---|---|---|---|---|
| 1 | 2022-10-18 | Tobias Frieß & Lukas Mechs | Everyone else | N/A | Noah Kurz | First Meeting |
| 2 | 2022-10-25 | Tobias Frieß & Lukas Mechs | Everyone else | Simon Sasse | Noah Kurz | No Real Work |
| 3 | 2022-11-01 | Tobias Frieß & Lukas Mechs | Everyone else | N/A | Noah Kurz | No Meeting / 2 Week Sprint |
| 4 | 2022-11-08 | Tobias Frieß & Lukas Mechs | Everyone else | Fabian Seitz | Noah Kurz | |
| 5 | 2022-11-15 | Tobias Frieß & Lukas Mechs | Everyone else | Alper Kilicaslan | Noah Kurz | |
| 6 | 2022-11-22 | Tobias Frieß & Lukas Mechs | Everyone else | Luis Günther | Noah Kurz | |
| 7 | 2022-11-29 | Tobias Frieß & Lukas Mechs | Everyone else | Anton Kriese | Noah Kurz | |
| 8 | 2022-12-06 | Tobias Frieß & Lukas Mechs | Everyone else | Simon Sasse | Noah Kurz | Mid-term due |
| 9 | 2022-12-13 | Tobias Frieß & Lukas Mechs | Everyone else | Petro Novotnyy | Noah Kurz | |
| 10 | 2023-01-10 | Tobias Frieß & Lukas Mechs | Everyone else | Fabian Seitz | Noah Kurz | |
| 11 | 2023-01-17 | Tobias Frieß & Lukas Mechs | Everyone else | Anton Kriese | Noah Kurz | |
| 12 | 2023-01-24 | Tobias Frieß & Lukas Mechs | Everyone else | Luis Günther | Noah Kurz | |
| 13 | 2023-01-31 | Tobias Frieß & Lukas Mechs | Everyone else | Alper Kilicaslan | Noah Kurz | |
| 14 | 2023-02-07 | Tobias Frieß & Lukas Mechs | Everyone else | Petro Novotnyy | Noah Kurz | Demo day! |
| 15 | 2023-02-14 | Tobias Frieß & Lukas Mechs | Everyone else | Luis Günther | Noah Kurz | Retrospective |

| | |
|---|---|
| **Goals** | Achieving a good overall result that meets the requirements and expectations of our industry partner.<br>Develop a useful software for our industry partner e-solutions. |
| **Meeting norms** | Weekly group meeting: Online (zoom) Wednesday 12:30-14:00: Mandatory for all group members<br>Weekly stakeholder meeting: Online Wednesday 15:30-16:30: Mandatory for PO and SM, SDs if possible<br>Weekly SD meeting: Online Wednesday 17:00-17:30: Mandatory for SD and SM, POs if possible<br>Punctuality is key, no delay is acceptable |
| **Working norms** | Clean code and software engineering pactices |
| **Coordination norms** | During the weekly SD meeting all tickets are assigned to responsible SDs.<br>It is the assignees job to coordinate the further work on the ticket, like breaking down the tickets into tasks, talking to assignees of dependent tickets and getting help if needed<br>Every Taskowner bears the responsibilty to deliver results until the end of the sprint<br>During the weekly SD meeting all SDs can raise concerns if they need help by someone or can´t spend time on the project for some reason.<br>Everyone keeps the other teammembers updated by writing at least two standup mails per sprint. |
| **Communication norms** | For our regular communication we created a MS Teams Channel. If someone needs the response / help from other team members they raise a threat in the according channel and tag the needed person. The tagged group should get back to the person within 24h during working days.<br>For important communication we created a WhatsApp Group. If someone needs the response / help from other team members and waited for more then 24h hours on their MS Teams response they can escalate it to the WhatsApp group.<br>If someone recoginces that something goes wrong / someone needs help / can not work on their assigned tasks for whatever reason communicate this as early as possible by writing a post in MS Teams and tagging @allgemein.<br>Every Monday afternoon is "gesteigerte Erreichbarkeit Montag". This means that everyone checks in and sees if there are help requests or other open todos which need immediate action. |
| **Consideration norms** | All product feature decisions are made from the Product Owner<br>All technical decisions are made by the software developers (majority vote)<br>The team votes for a final decision if the whole projects gets impacted, Disagreements has to be discussed immediatly |
| **Cont. improvement norms** | use linter<br>general code rules (use conventions and design guide of the used programming language)<br>code review (use git hub pull request -> reviewer will be assigned randomly by github)<br>use weekly team meeting for general problems and improvments |

| | |
|---|---|
| **Rewards** | do a final release party |
| **Sanctions** | 1) if someone does not meet a goal we will discuss in team meeting what should happen<br>2) team decides what should happen |
| **Signatures** | **PN** |
| Scrum Master | Noah Kurz |
| Product owner | Tobias Frieß |
| Product owner | Lukas Mechs |
| Software developer | Luis Günther |
| Software developer | Alper Kilicaslan |
| Software developer | Anton Kriese |
| Software developer | Petro Novotnyy |
| Software developer | Simon Sasse |
| Software developer | Fabian Seitz |

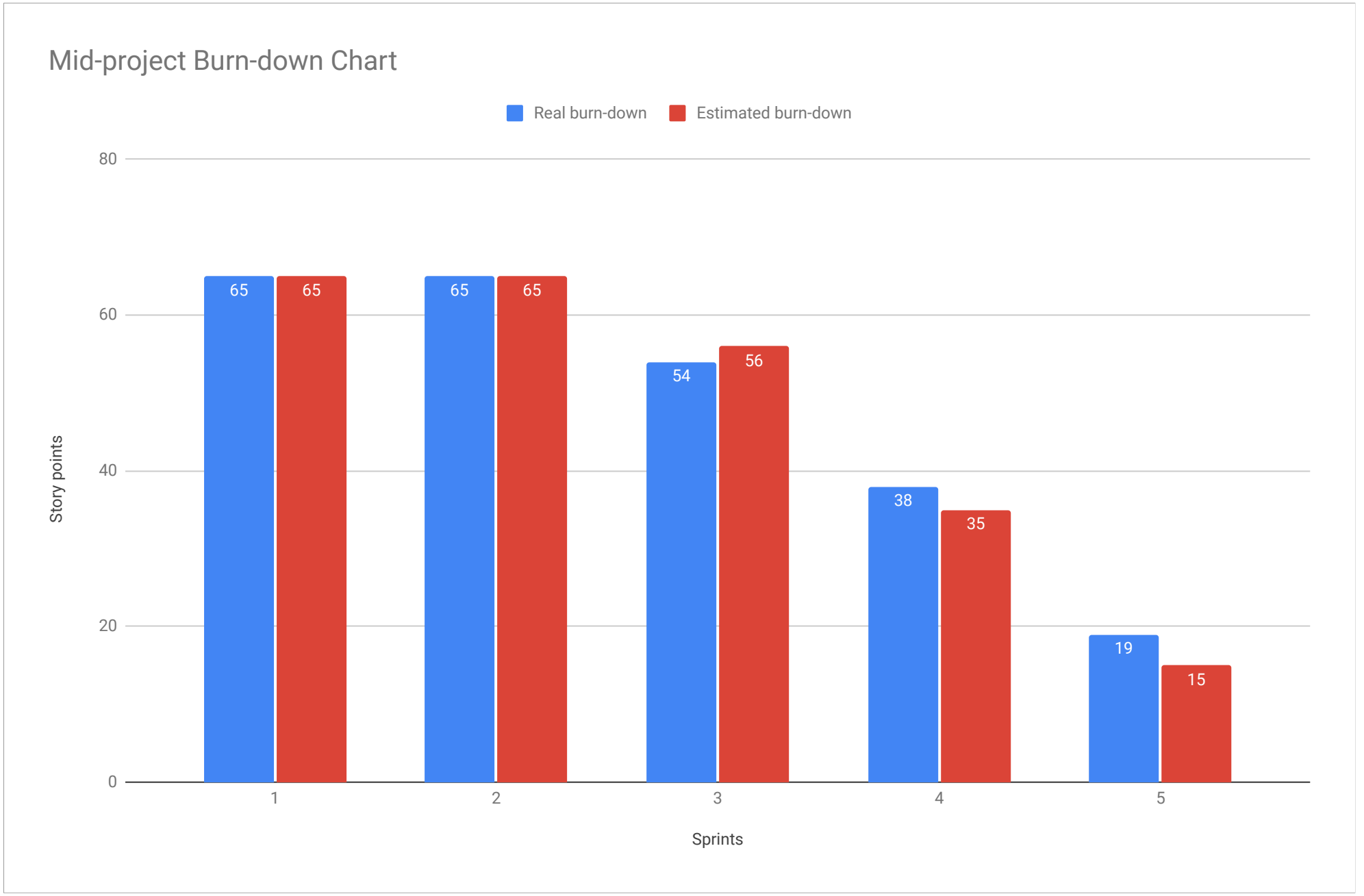
| Product Vision | Project Mission |
| --- | --- |
| The GUI Frame Diff tool is envisioned as a powerful, intuitive, and efficient solution for comparing sequences of screenshots. Our primary objective is to ensure seamless integration with existing interfaces and structures.<br>The user interface, inspired by the functionality of video editing tools, is designed to offer an intuitive and efficient way to utilize the tool's capabilities. A wide range of customizable settings are available directly within the GUI, allowing users to optimize the output of the diff video according to their specific needs.<br>Beyond its core functionality, the GUI Frame Diff tool is designed with extensibility in mind. It can serve as a foundation for a variety of additional use cases, such as machine learning applications or the creation of tree-like data structures for enhanced data overview. This flexibility makes it a versatile tool that can adapt to the evolving needs of its users. | The mission of this project is to develop a comprehensive and efficient GUI Frame Diff tool, structured into three synergistic libraries. Library 1 will focus on optimizing storage efficiency. It will combine multiple screenshots from a car's infotainment system into a single, compact video file. The key goal is to significantly reduce storage consumption without compromising the quality and integrity of the visual data. The core functionality of Library 2 is to accurately identify and articulate changes between two video sequences. This includes both frame-level modifications and pixel-level differences within frames. Building upon Library 2, UI-focused Library 3 will provide a user-friendly interface that allows users to effortlessly generate and visualize differences between videos. |

| Term | Definition |
| --- | --- |
| Image | A image is a screenshot of a certain state of the car's infortainment system |
| Video Difference | A video difference between two videos can be a added or deleted frame or a pixel difference within a frame |
| Head Unit | The infotainment system of a car running android automotive |
| Mask | A rectangle in the video that will not be considered in the computation of the video difference |

| Sprint # | Sprint goal |
|---|---|
| 1 | None |
| 2 | None |
| 3 | None |
| 4 | None |
| 5 | Improve functionallity of Library 1 and 2 and setup Library 3 |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |
| 13 | |
| 14 | |
| 15 | |

| Sprint | Goal | Feature Name | Est. Size | Est. Remaining | Real Size | Real Remaining |
|---|---|---|---|---|---|---|
| **Release** | | | | | | |
| **Total** | | | 65 | 65 | | |
| **Sprints** | | | | | | |
| 1 | **Sprint 1** | | 0 | 65 | 0 | 65 |
| 2 | **Sprint 2** | Setup Project | 9 | 65 | 11 | 65 |
| 3 | **Sprint 3** | Input and Output of Library 1 and 2 | 21 | 56 | 16 | 54 |
| 4 | **Sprint 4** | Data Processing of Library 1 and 2 | 20 | 35 | 19 | 38 |
| 5 | **Sprint 5** | Expand Library 1 and 2 and Setup Library 3 | 15 | 15 | 22 | 19 |
| **Features** | | | | | | |
| **1** | **Sprint 1** | | | | | |
| **2** | **Sprint 2** | Set up code guidelines for the project | 2 | | 3 | |
| | | Setup Code Base for Library 2 | 5 | | 3 | |
| | | Import for frame diff (Library 2) | 2 | | 5 | |
| **3** | **Sprint 3** | Computation of the frame diff (Library 2) | 3 | | 5 | |
| | | Data Input API (Library 1) | 5 | | 2 | |
| | | Setup Code Base for Libary 1 | 5 | | 3 | |
| | | Adjust Input of Library 1 | 3 | | 2 | |
| | | build demo system for Library 1 | 3 | | 3 | |
| | | Export of the frame diff video file (Library 2) | 2 | | 1 | |
| **4** | **Sprint 4** | compute added and deleted frames (Library 2) | 8 | | 8 | |
| | | Data Processing (Library 1) | 3 | | 3 | |
| | | Setup Tests (Library 2) | 3 | | 3 | |

| Sprint | Goal | Feature Name | Est. Size | Est. Remaining | Real Size | Real Remaining |
|---|---|---|---|---|---|---|
| | | visualize added and deleted screens(Library 2) | 3 | | 3 | |
| | | Data Export (Library 1) | 3 | | 2 | |
| **5** | **Sprint 5** | Check compatibility of Library 1 with Android example project (Library 1) | 3 | | 8 | |
| | | Mask selection (Library 2) | 5 | | 3 | |
| | | Setup Library 3 (Research, design decisions) (Library 3) | 3 | | 3 | |
| | | find storage place for test pictures (Library 1) | 2 | | 3 | |
| | | Read image from filesystem for demo purposes (Library 1) | 2 | | 5 | |

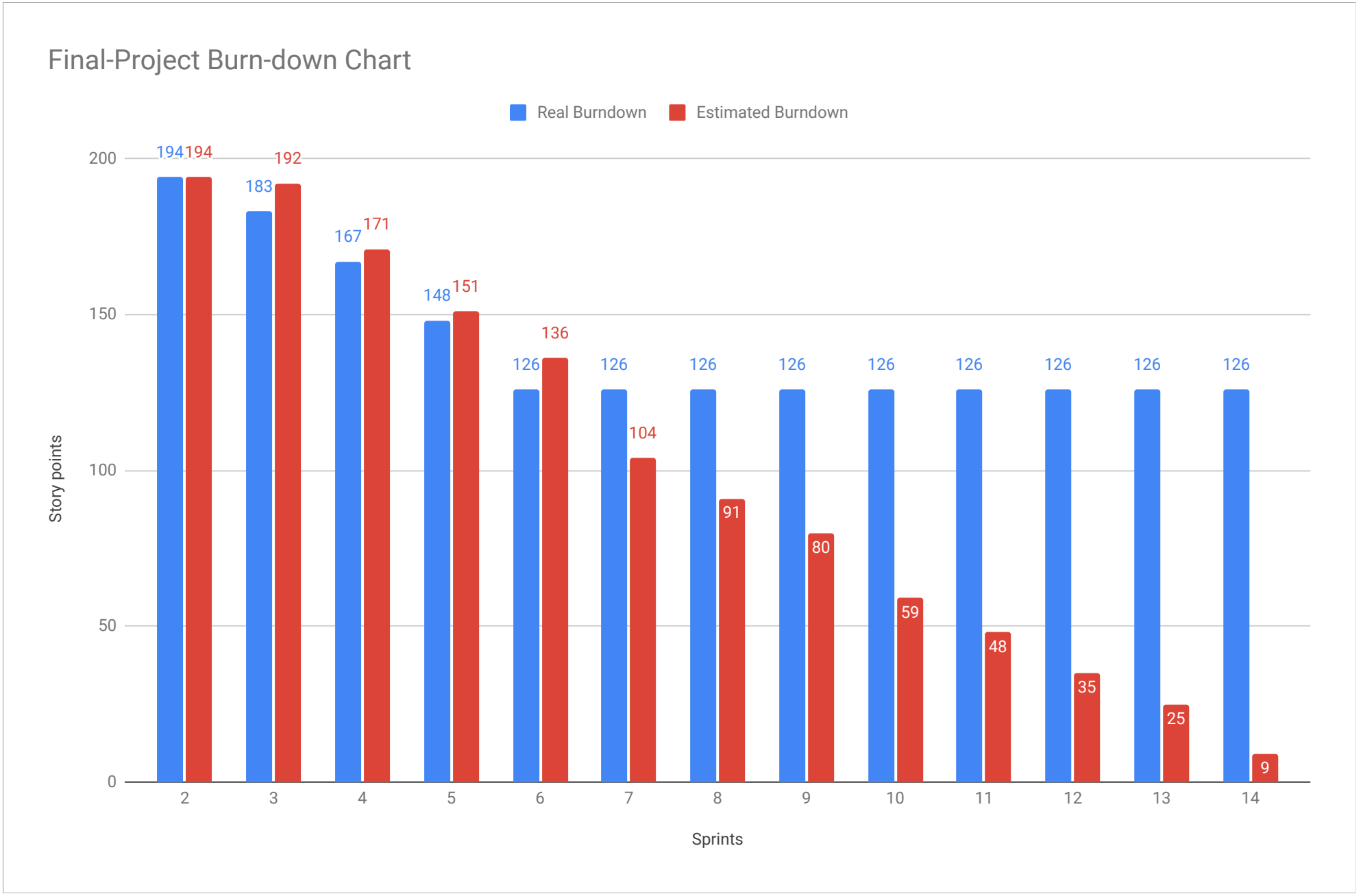

Mid-project Burn-down Chart
Real burn-down
Estimated burn-down
80
60
40
20
0
Story points
65
65
65
65
54
56
38
35
19
15
1
2
3
4
5
Sprints

| Sprint | Goal | Feature Name | Est. Size | Est. Remaining | Real Size | Real Remaining |
|---|---|---|---|---|---|---|
| **Release** | | | | | | |
| **Total** | | | 194 | 194 | | |
| **Sprints** | | | | | | |
| 1 | | | 0 | 194 | 0 | 194 |
| 2 | | Setup Project | 2 | 194 | 11 | 194 |
| 3 | | Input and Output of Library 1 and 2 | 21 | 192 | 16 | 183 |
| 4 | | Data Processing of Library 1 and 2 | 20 | 171 | 19 | 167 |
| 5 | | Expand Library 1 and 2 and Setup Library 3 | 15 | 151 | 22 | 148 |
| 6 | | Complete Library 1 & Library 2 | 32 | 136 | 0 | 126 |
| 7 | | Complete basis UI | 13 | 104 | 0 | 126 |
| 8 | | Extend the UI (Part 1) | 11 | 91 | 0 | 126 |
| 9 | | Extend the UI (Part 2) | 21 | 80 | 0 | 126 |
| 10 | | Change Library 1 to Webservice (split up core functionality and client library) | 11 | 59 | 0 | 126 |
| 11 | | Optimize Library 2 algorithm | 13 | 48 | 0 | 126 |
| 12 | | Create UI Editor for masking | 10 | 35 | 0 | 126 |
| 13 | | Complete Library 1 & Library 2 and UI | 16 | 25 | 0 | 126 |
| 14 | | Finish project | 9 | 9 | 0 | 126 |
| **Features** | | | | | | |
| **1** | **Sprint 1** | | | | | |
| **2** | **Sprint 2** | Set up code guidelines for the project | 2 | | 3 | |
| | | Setup Code Base for Library 2 | 5 | | 3 | |
| | | Import for frame diff (Library 2) | 2 | | 5 | |
| **3** | **Sprint 3** | Computation of the frame diff (Library 2) | 3 | | 5 | |
| | | Data Input API (Library 1) | 5 | | 2 | |

| Sprint | Goal | Feature Name | Est. Size | Est. Remaining | Real Size | Real Remaining |
|---|---|---|---|---|---|---|
| | | Setup Code Base for Libary 1 | 5 | | 3 | |
| | | Adjust Input of Library 1 | 3 | | 2 | |
| | | build demo system for Library 1 | 3 | | 3 | |
| | | Export of the frame diff video file (Library 2) | 2 | | 1 | |
| **4** | **Sprint 4** | compute added and deleted frames (Library 2) | 8 | | 8 | |
| | | Data Processing (Library 1) | 3 | | 3 | |
| | | Setup Tests (Library 2) | 3 | | 3 | |
| | | visualize added and deleted screens(Library 2) | 3 | | 3 | |
| | | Data Export (Library 1) | 3 | | 2 | |
| **5** | **Sprint 5** | Check compatibility of Library 1 with Android example project (Library 1) | 3 | | 8 | |
| | | Mask selection (Library 2) | 5 | | 3 | |
| | | Setup Library 3 (Research, design decisions) (Library 3) | 3 | | 3 | |
| | | find storage place for test pictures (Library 1) | 2 | | 3 | |
| | | Read image from filesystem for demo purposes (Library 1) | 2 | | 5 | |
| **6** | **Sprint 6** | Irregular work for Sprint 6 | 2 | | | |
| | | tuning of the algorithm (Library 2) | 5 | | | |
| | | write tests (Library 2) | 5 | | | |
| | | runtime and storage consumption optimization (Library 2) | 8 | | | |
| | | research and improve compression rate (Library 1) | 3 | | | |
| | | Choose and justify a video format (Library 1) | 3 | | | |
| | | Check licenses of Library 1 | 3 | | | |
| | | Build a basic GUI (=basic video editing tool) for (Library 3) | 3 | | | |
| **7** | **Sprint 7** | Create CI Pipeline | 3 | | | |
| | | Change Video Codec of Library 1 | 1 | | | |
| | | Improve Hyperparameter tuning of Library 2 | 3 | | | |
| | | Implement image export from video (Library 2) | 3 | | | |
| | | Functionality of the buttons (Library 3) | 3 | | | |
| **8** | **Sprint 8** | Build a frame navigation interface (Library 3) | 5 | | | |
| | | Add a Timeline to the GUI (Library 3) | 3 | | | |
| | | Add a screen preview (Library 3) | 3 | | | |

| Sprint | Goal | Feature Name | Est. Size | Est. Remaining | Real Size | Real Remaining |
|---|---|---|---|---|---|---|
| **9** | **Sprint 9** | Refactor and improve Library 3 | 5 | | | |
| | | Accessible hyperparameter settings in the GUI (Library 2, Library 3) | 3 | | | |
| | | Implement advanced features of the GUI | 8 | | | |
| | | Refactor design of the GUI | 5 | | | |
| **10** | **Sprint 10** | Design and plan the changes of Library 1 | 2 | | | |
| | | Change and adapt the relevant interfaces of Library 1 | 3 | | | |
| | | Make the core functionality of Library 1 accesible via WebService | 3 | | | |
| | | Build a client for Library 1 that calls the WebService | 3 | | | |
| **11** | **Sprint 11** | Optimize the algorithm and the hyperparameter of Library 2 | 3 | | | |
| | | Optimize the memory consumption of Library 2 | 5 | | | |
| | | Optimize the storage consumption of Library 2 | 5 | | | |
| **12** | **Sprint 12** | Add mask selection to the GUI (Library 3) | 5 | | | |
| | | Adjust masking to JSON input (Library 2) | 2 | | | |
| | | Plan final release and things that have to be done | 3 | | | |
| **13** | **Sprint 13** | Final bugfixes | 5 | | | |
| | | Final release plan | 3 | | | |
| | | Test software on different systems | 5 | | | |
| | | Check compatibility and functionality | 3 | | | |
| **14** | **Sprint 14** | Create project report | 3 | | | |
| | | Create project retrospective | 3 | | | |
| | | Finish project | 3 | | | |

| Sprint | Goal | Feature Name | Est. Size | Est. Remaining | Real Size | Real Remaining |
|---|---|---|---|---|---|---|


Final-Project Burn-down Chart
Real Burndown
Estimated Burndown
Story points
200
150
100
50
0
194
194
183
192
167
171
148
151
126
136
126
104
126
91
126
80
126
59
126
48
126
35
126
25
126
9
2
3
4
5
6
7
8
9
10
11
12
13
14
Sprints

| # | Feature Definition of Done | Sprint Release Definition of Done | Project Release Definition of Done |
|---|---|---|---|
| | Created a feature branch | Project builds (Library 1 builds within Android environment) | UI has been manually tested |
| | Implemented the functionality | All tests run successful | User, design and build documentation is finished |
| | Opened pull request and assigned reviewer | Readme has been adjusted if necessary | Project builds (Library 1 builds within Android environment) |
| | If necessary: requireded changes are implemented | Version has been tagged | All tests run successful |
| | If necessary: Component Test has been written | User, design and build documentation has been updated | Approved manually from every team member |
| | Code review has been completed and code has been merged | | |
| | Deleted feature branch | | |

| Type | Link / reference |
| --- | --- |
| | |
| | |
| | |
| | |
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| | |
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| | |
| | |
| | |
| | |

| # | Context | Name | Version | License | Comment |
|---|---|---|---|---|---|
| 1 | Video Conversion & Codec handling | FFmpeg | 2/2.1+ | GPL/LGPL | |
| 2 | | Android SDK | | | |
| 3 | | Open JDK | | GPL | |
| 4 | | JUnit | | Eclipse Public License | |
| 5 | | Ktlint | | MIT | Only for devs, not part of the products |
| 6 | | javaCV | | Apache 2.0 | |

| Last Name | First Name | Value |
|---|---|---|
| Frieß | Tobias | |
| Günther | Luis | |
| Kilicaslan | Alper | |
| Kriese | Anton | |
| Kurz | Noah | |
| Mechs | Lukas | |
| Novotnyy | Petro | |
| Sasse | Simon | |
| Seitz | Fabian | |

| | |
|---|---|
| #DIV/0! | #DIV/0! |
| 0 | No size |
| 1 | Trivial size |
| 2 | Small size |
| 3 | Medium size |
| 5 | Large size |
| 8 | Very large size |
| 13 | Too large (size) |