

Project Name	
Online team meeting	<a href="https://fau.zoom-x.de/j/67054574883?pwd=d1hjWHcyREZnK3lrb25nN1VBNDVBQT09">https://fau.zoom-x.de/j/67054574883?pwd=d1hjWHcyREZnK3lrb25nN1VBNDVBQT09</a>
Production system (if any)	...
Test system (if any)	...
GitHub repository	<a href="https://github.com/amosproj/amos2023ws03-gui-frame-diff">https://github.com/amosproj/amos2023ws03-gui-frame-diff</a>
GitHub feature board	<a href="https://github.com/orgs/amosproj/projects/27/views/2">https://github.com/orgs/amosproj/projects/27/views/2</a>
GitHub impediments backlog	<a href="https://github.com/orgs/amosproj/projects/37">https://github.com/orgs/amosproj/projects/37</a>
Team T-shirt (white)	<a href="https://www.shirtinator.de/s/yUTG2wN7RPi5Ynir3Ch2lg">https://www.shirtinator.de/s/yUTG2wN7RPi5Ynir3Ch2lg</a>
Team T-shirt (black)	<a href="https://www.shirtinator.de/s/-tG1TSIMTuO9R0fVzbDHIQ">https://www.shirtinator.de/s/-tG1TSIMTuO9R0fVzbDHIQ</a>
Additional materials	...

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#	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	2022-12-20	Tobias Frieß & Lukas Mechs	Everyone else	Fabian Seitz	Noah Kurz	
11	2023-01-10	Tobias Frieß & Lukas Mechs	Everyone else	Anton Kriese	Noah Kurz	
12	2023-01-17	Tobias Frieß & Lukas Mechs	Everyone else	Simon Sasse	Noah Kurz	
13	2023-01-24	Tobias Frieß & Lukas Mechs	Everyone else	Luis Günther	Noah Kurz	
14	2023-01-31	Tobias Frieß & Lukas Mechs	Everyone else	Alper Kilicaslan	Noah Kurz	
15	2023-02-07	Tobias Frieß & Lukas Mechs	Everyone else	Petro Novotnyy	Noah Kurz	Demo day!
16	2023-02-14	Tobias Frieß & Lukas Mechs	Everyone else	Luis Günther	Noah Kurz	Retrospective

<b>Goals</b>	Achieving a good overall result that meets the requirements and expectations of our industry partner.
	Develop a useful software for our industry partner e-solutions.
<b>Meeting norms</b>	Weekly group meeting: Online (zoom) Wednesday 12:30-14:00: Mandatory for all group members
	Weekly stakeholder meeting: Online Wednesday 15:30-16:30: Mandatory for PO and SM, SDs if possible
	Weekly SD meeting: Online Wednesday 17:00-17:30: Mandatory for SD and SM, POs if possible
	Punctuality is key, no delay is acceptable
<b>Working norms</b>	Clean code and software engineering practices
<b>Coordination norms</b>	During the weekly SD meeting all tickets are assigned to responsible SDs.
	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
	Every Taskowner bears the responsibility to deliver results until the end of the sprint
	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.
	Everyone keeps the other teammembers updated by writing at least two standup mails per sprint.
<b>Communication norms</b>	For our regular communication we created a MS Teams Channel. If someone needs the response / help from other team members they raise a thread in the according channel and tag the needed person. The tagged group should get back to the person within 24h during working days.
	For important communication we created a WhatsApp Group. If someone needs the response / help from other team members and waited for more than 24h hours on their MS Teams response they can escalate it to the WhatsApp group.
	If someone recognizes 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.
	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.
<b>Consideration norms</b>	All product feature decisions are made from the Product Owner
	All technical decisions are made by the software developers (majority vote)
	The team votes for a final decision if the whole project gets impacted, Disagreements have to be discussed immediately
<b>Cont. improvement norms</b>	use linter
	general code rules (use conventions and design guide of the used programming language)
	code review (use git hub pull request -> reviewer will be assigned randomly by github)
	use weekly team meeting for general problems and improvements

<b>Rewards</b>	do a final release party
<b>Sanctions</b>	1) if someone does not meet a goal we will discuss in team meeting what should happen 2) team decides what should happen
<b>Signatures</b>	<b>PN</b>
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
<p>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.</p> <p>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.</p> <p>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.</p>	<p>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.</p>

Term	Definition
Image	A image is a screenshot of a certain state of the car's infotainment 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
Hyperparameter	Parameters that can be adjusted to adjust the differenciation between added and deleted frame and pixel differences
Blacklisting	Blacklisted rectangles won't be considered in the video difference computation
Whitelisting	Whitelisted rectangles will be considered in the video difference computation
Frame Collage	A picture export format out of the video player where the user can see the current frame, a reference frame and the delta side by side for analytical purposes
Indicator	A red line that indicates at which position we are currently in the video.
Timeline Window	The timeline windows is the section ot the timeline that is currently shown to the user.

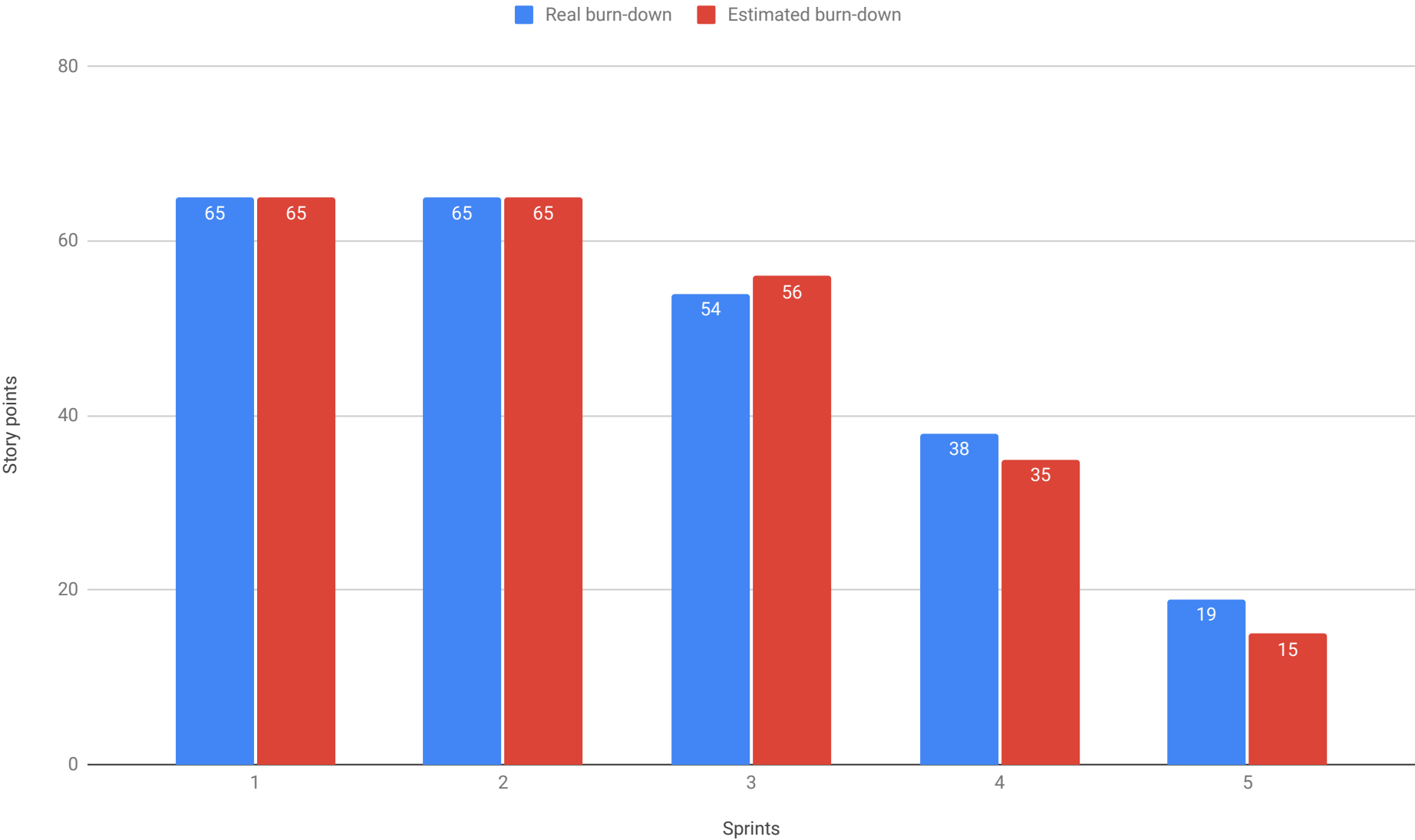
Sprint #	Sprint goal
1	None
2	None
3	None
4	None
5	Improve functionallity of Library 1 and 2 and setup Library 3
6	Focus on UI improvments
7	Implement advanced features of UI
8	Implement analytic feature of UI
9	
10	
11	
12	
13	
14	
15	



Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
<b>Release</b>						
<b>Total</b>			65	65		
<b>Sprints</b>						
1	<b>Sprint 1</b>		0	65	0	65
2	<b>Sprint 2</b>	Setup Project	9	65	11	65
3	<b>Sprint 3</b>	Input and Output of Library 1 and 2	21	56	16	54
4	<b>Sprint 4</b>	Data Processing of Library 1 and 2	20	35	19	38
5	<b>Sprint 5</b>	Expand Library 1 and 2 and Setup Library 3	15	15	22	19
<b>Features</b>						
1	<b>Sprint 1</b>					
2	<b>Sprint 2</b>	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	<b>Sprint 3</b>	Computation of the frame diff (Library 2)	3		5	
		Data Input API (Library 1)	5		2	
		Setup Code Base for Library 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	<b>Sprint 4</b>	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



Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
<b>Release</b>						
<b>Total</b>			241	241		
<b>Sprints</b>						
1			0	241	0	241
2		Setup Project	2	241	11	241
3		Input and Output of Library 1 and 2	21	239	16	230
4		Data Processing of Library 1 and 2	20	218	19	214
5		Expand Library 1 and 2 and Setup Library 3	15	198	22	195
6		Complete Library 1 & Library 2	26	183	24	173
7		Complete basis UI	23	157	19	149
8		Extend the UI (Part 1)	29	134	26	130
9		Extend the UI (Part 2)	30	105	0	104
10		Change Library 1 to Webservice (split up core functionality and client library)	27	75	0	104
11		Optimize Library 2 algorithm	13	48	0	104
12		Create UI Editor for masking	10	35	0	104
13		Complete Library 1 & Library 2 and UI	16	25	0	104
14		Finish project	9	9	0	104
<b>Features</b>						
<b>1</b>	<b>Sprint 1</b>					
<b>2</b>	<b>Sprint 2</b>	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	
<b>3</b>	<b>Sprint 3</b>	Computation of the frame diff (Library 2)	3		5	
		Data Input API (Library 1)	5		2	

<b>Sprint</b>	<b>Goal</b>	<b>Feature Name</b>	<b>Est. Size</b>	<b>Est. Remaining</b>	<b>Real Size</b>	<b>Real Remaining</b>
		Setup Code Base for Library 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	
<b>4</b>	<b>Sprint 4</b>	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	
<b>5</b>	<b>Sprint 5</b>	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	
<b>6</b>	<b>Sprint 6</b>	Irregular work for Sprint 6	2		3	
		tuning of the algorithm (Library 2)	5		2	
		write tests (Library 2)	5		5	
		runtime and storage consumption optimization (Library 2)	8		8	
		research and improve compression rate (Library 1)	3		3	
		Build a basic GUI (=basic video editing tool) for (Library 3)	3		3	
<b>7</b>	<b>Sprint 7</b>	Create CI Pipeline	5		2	
		Choose and justify a video format (Library 1)	3		3	
		Check licenses of Library 1	3		3	
		Improve Hyperparameter tuning of Library 2	2		1	
		Implement image export from video (Library 2)	5		5	
		Functionality of the buttons (Library 3)	3		5	
		Build a frame navigation interface (Library 3)	2		2	
<b>8</b>	<b>Sprint 8</b>	Adjust TestGenerator for Library 2	3		3	
		Add a Timeline to the GUI (Library 3)	3		8	
		Change Video Codec of Library 1	2		2	
		Extend CI-Pipeline	3		3	

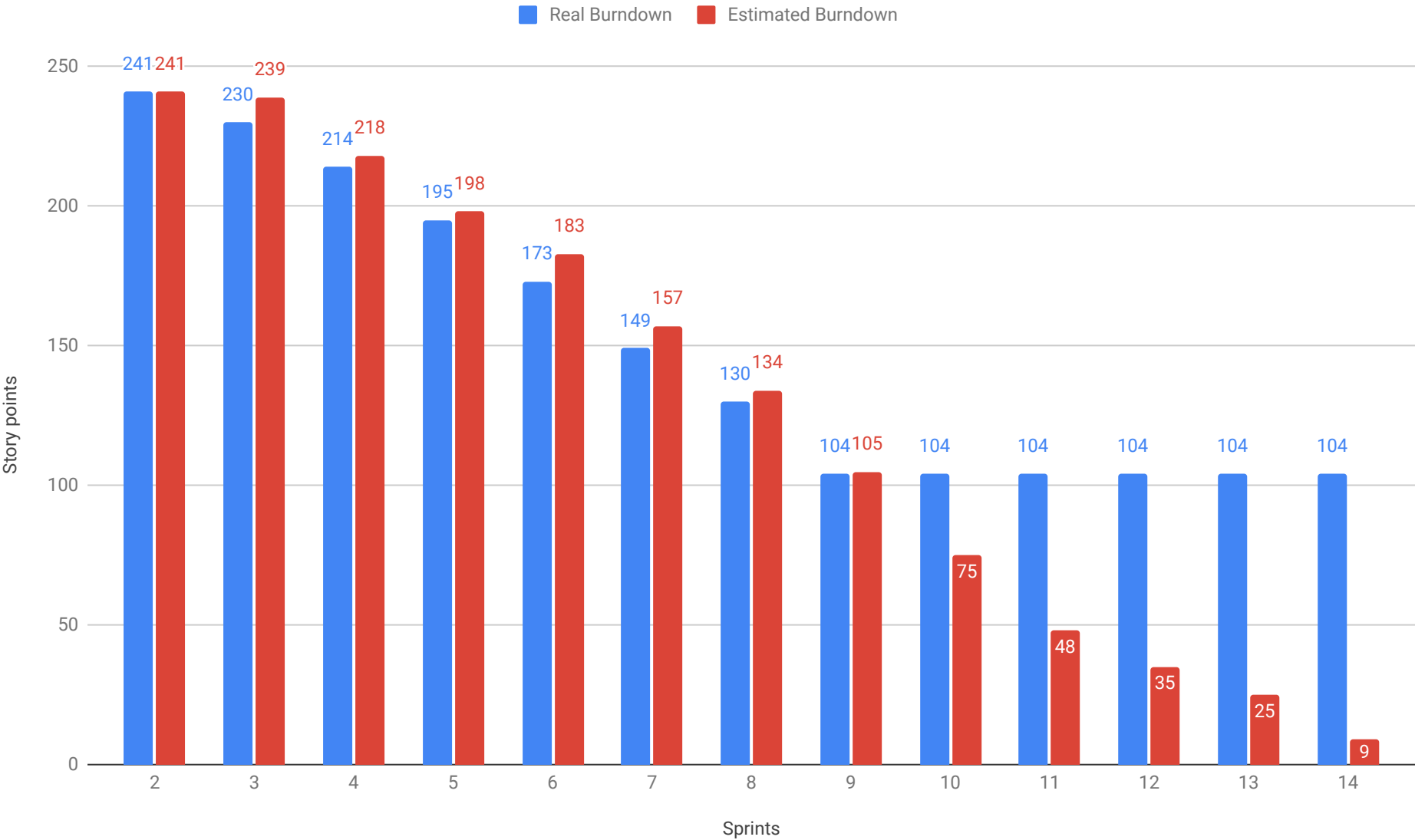
Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
		Fix Licence Check (Library 1)	3		2	
		Add a full screen preview for single videos (Library 3)	8		8	
		Add window for advanced settings (Library 3)	3		2	
		Add mask selection to the GUI (Library 3)	2		1	
		Accessible hyperparameter settings in the GUI (Library 2, Library 3)	2			
9	Sprint 9	Setup UI-Tests (Library 3)	3			
		Manual saving of a frame collage as png	3			
		Manual saving of a frame as png	3			
		Improvements of the GUI: Add menu bar and improve file selection	3			
		Improvements of the GUI: Improve appearance	3			
		Improvements of the GUI: Add info boxes	3			
		Export/Import of project data	3			
		Adapt the size of the buttons of the full-screen video	1			
		Add a screen preview (Library 3)	5			
		Statistical information for the user	3			
10	Sprint 10	Add a screen preview (Library 1)	8			
		Export of all inserted frames as a png list	3			
		Restructure UI (Library 3)	3			
		Use Material 3 Theme for UI (Library 3)	2			
		Add a short documentation of the algorithm	3			
		Change positioning of the tooltip in advanced settings (Library 3)	3			
		Create a UI-Tests for the happy path (Library 3)	5			
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			

[illegible]

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



Final-Project Burn-down Chart



#	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: required 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
User Documentation	<a href="https://github.com/amosproj/amos2023ws03-gui-frame-diff/wiki/User-Documentation">https://github.com/amosproj/amos2023ws03-gui-frame-diff/wiki/User-Documentation</a>
Build Documentation	<a href="https://github.com/amosproj/amos2023ws03-gui-frame-diff/wiki/Build-Documentation">https://github.com/amosproj/amos2023ws03-gui-frame-diff/wiki/Build-Documentation</a>
Design Documentation	<a href="https://github.com/amosproj/amos2023ws03-gui-frame-diff/wiki/Design-Documentation">https://github.com/amosproj/amos2023ws03-gui-frame-diff/wiki/Design-Documentation</a>

#	Context	Name	Version	License	Comment
1	Video Conversion & Codec handling	FFmpeg	2/2.1+	GPL/LGPL	
2	Developing for Android, Emulating	Android SDK			
3	Developing and Building Kotlin Code, Using Java Libraries	Open JDK		GPL	
4	Code Testing	JUnit		Eclipse Public License	
5	Code Linting and Formatting	Ktlint		MIT	Only for devs, not part of the products
6	Video Conversion & Codec Handling	javaCV		Apache 2.0	
7		Gradle			

Last Name	First Name	Value					
Frieß	Tobias			5.00	#DIV/0!		
Günther	Luis						
Kilicaslan	Alper						
Kriese	Anton						
Kurz	Noah			0	No size		
Mechs	Lukas			1	Trivial size		
Novotnyy	Petro			2	Small size		
Sasse	Simon	5		3	Medium size		
Seitz	Fabian			5	Large size		
				8	Very large size		
				13	Too large (size)		