

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/yUTG2wN7RPi5Ynir3Ch2lg
Team T-shirt (black)	https://www.shirtinator.de/s/-tG1TSIMTuO9R0fVzbDHIQ
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		If Urgent	If Urgent	Whole Day	Whole Day	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	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	Alper Kilicaslan	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	Simon Sasse	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

Goals	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.
Meeting norms	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
Working norms	Clean code and software engineering practices
Coordination norms	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.
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 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.
Consideration norms	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
Cont. improvement norms	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

Rewards	do a final release party
Sanctions	1) if someone does not meet a goal we will discuss in team meeting what should happen 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
<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>

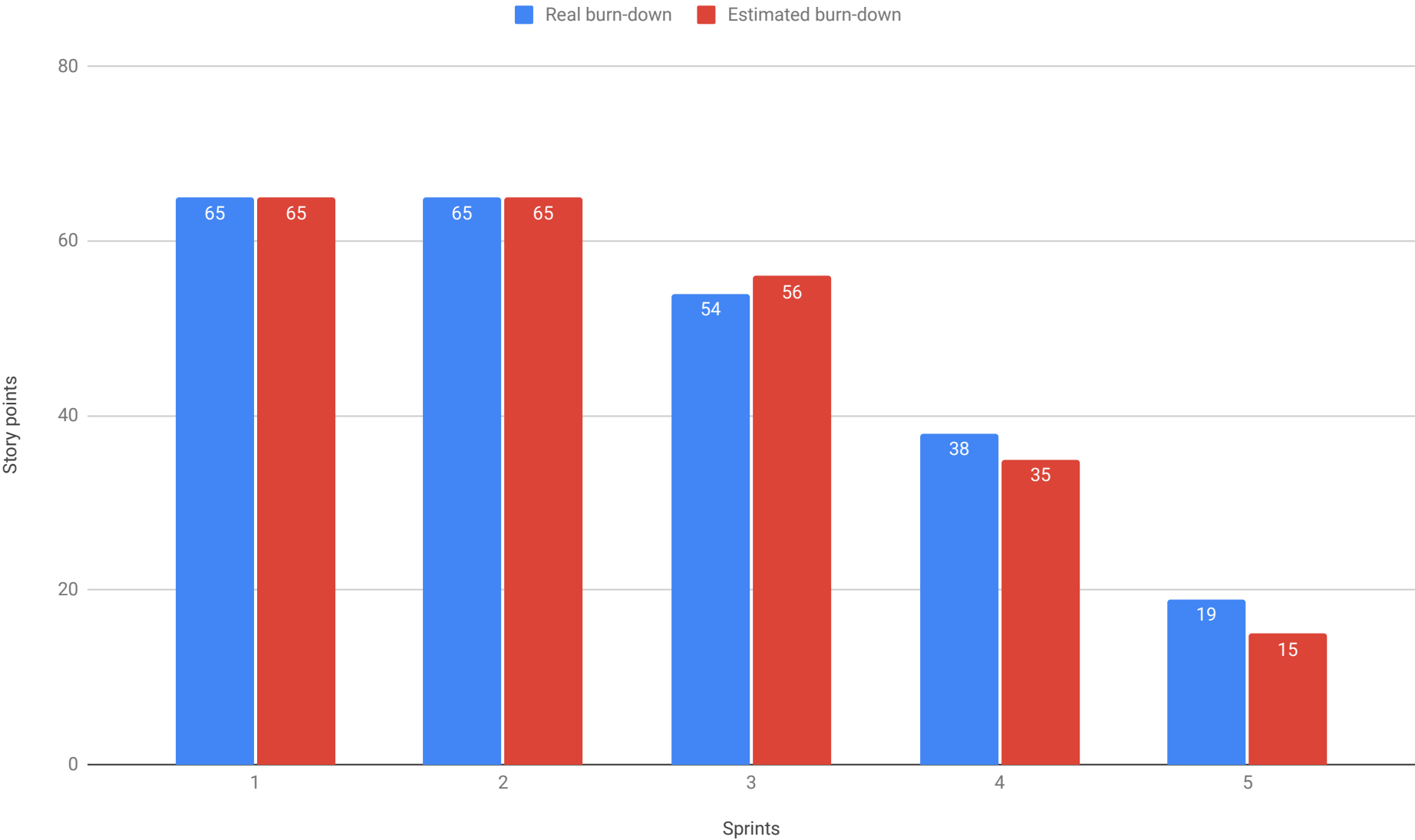
Term	Definition
Image	A image is a screenshot of a certain state of the car's infotainment system
Video Difference	A video difference between two videos can be a added or deleted frame or a pixel difference within a frame
Head Unit	The infotainment system of a car running android automotive
Mask	A rectangle in the video that will not be considered in the computation of the video difference
Hyperparameter	Parameters that can be adjusted to adjust the differentiation 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.
Reference Video	The reference video is the "old" video and the video that is the comparision basis for the current video.
Current Video	The current video ist he "new" video and the video that gets compared to the reference video.
Alignment	The result of the comparison of two videos is an alignment. This does not contain the original images but only the information about how these sequences are best aligned to each other.

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 basic features of UI
8	Implement advanced features of UI
9	Implement analytic feature of UI
10	Improvment and restructuring of the UI
11	Improve Error Handling and user guiding through UI
12	Focus on final UI Improvments and fixes
13	Round off functionality and design of the software
14	Demo Day

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 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	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



Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
Release						
Total			270	270		
Sprints						
1			0	270	0	284
2		Setup Project	9	270	11	284
3		Input and Output of Library 1 and 2	21	261	16	273
4		Data Processing of Library 1 and 2	20	240	19	257
5		Expand Library 1 and 2 and Setup Library 3	15	220	22	238
6		Complete Library 1 & Library 2	26	205	24	216
7		Complete basis UI	23	179	21	192
8		Extend the UI (Part 1)	29	156	31	171
9		Add analytic fuctionalities	24	127	23	140
10		Improvment and restructuring of the UI	33	103	34	117
11		Add overview timeline & improve design	23	70	25	83
12		Improvments in the user journey	21	47	22	58
13		Complete Library 1 & Library 2 and UI	26	26	36	36
14		Finish project	0	0	0	0
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	

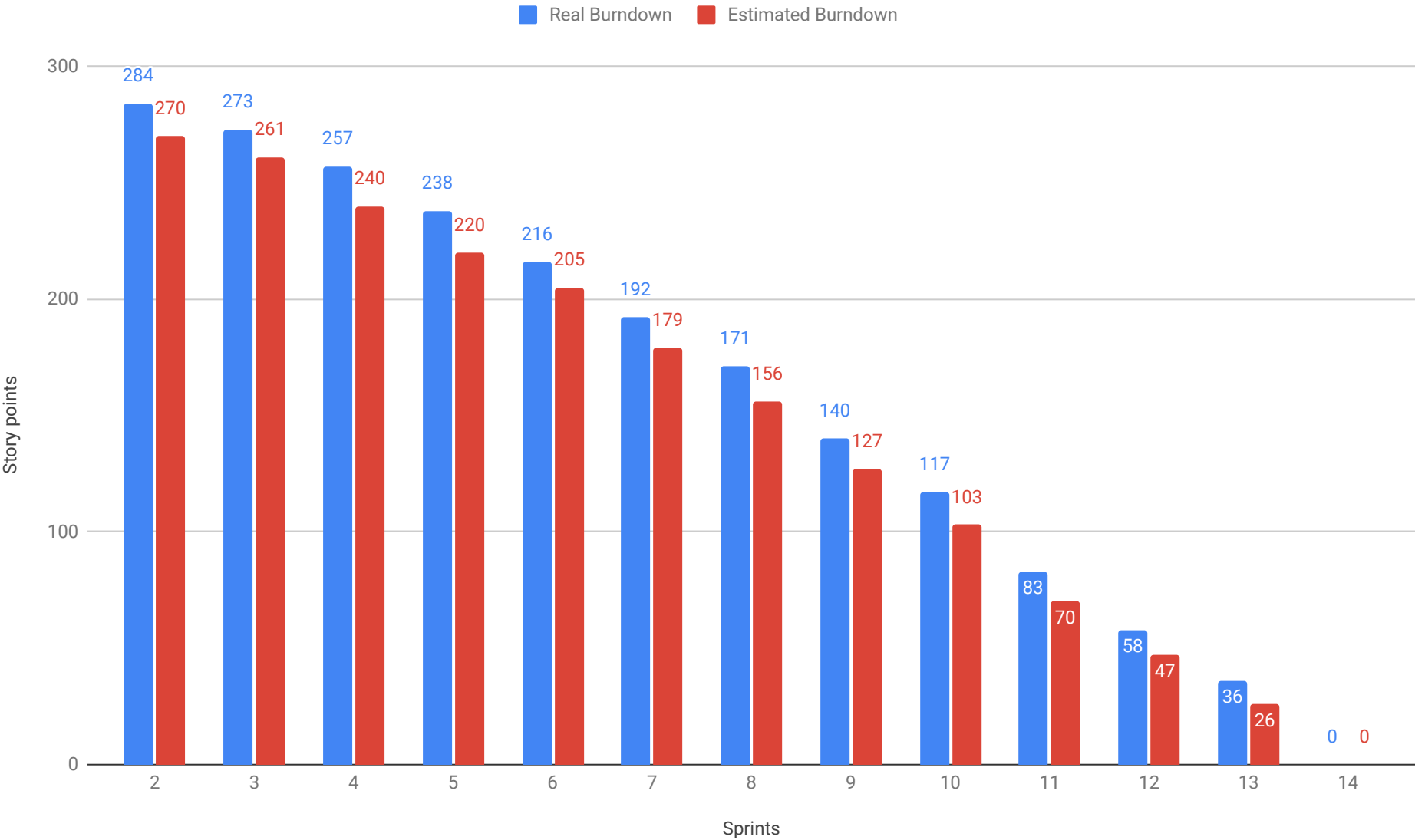
Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
		Setup Code Base for Library 1	5		3	
		Adjust Input of Library 1	3		2	
		build demo system for Library 1	3		3	
		Export of the frame diff video file (Library 2)	2		1	
4	Sprint 4	compute added and deleted frames (Library 2)	8		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		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	
7	Sprint 7	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	
8	Sprint 8	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		2	
9	Sprint 9	Manual saving of a frame collage as png	3		2	
		Manual saving of a frame as png	5		5	
		Improvements of the GUI: Add menu bar and improve file selection	3		3	
		Improvements of the GUI: Add info boxes	3		3	
		Export/Import of project data	5		5	
		Add back button to advanced settings screen	2		2	
		Adapt the size of the buttons of the full-screen video	1		1	
		Statistical information for the user	2		2	
10	Sprint 10	Add a screen preview (Library 1)	8		8	
		Export of all inserted frames as a png list	3		5	
		Restructure UI (Library 3)	8		5	
		Setup UI-Tests (Library 3)	3		5	
		Add a screen preview (Library 3)	8		8	
		Add a short documentation of the algorithm	3		3	
11	Sprint 11	Rename video 1 and video 2 (Library 3)	1		1	
		Add overview timeline (Library 3)	5		5	
		Change to reference and current video	3		3	
		Improvements of the GUI: Improve appearance	3		5	
		Improvement of the error handling	5		5	
		Use Material 3 Theme for UI (Library 3)	3		3	
		Add simple test data to the GitHub project	3		3	
12	Sprint 12	Improve design with Material 3	5		13	
		Set mask to null in default case (Library 3)	3		3	
		Add delete mask button (Library 3)	2		2	

[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	https://github.com/amosproj/amos2023ws03-gui-frame-diff/wiki/User-Documentation
Build Documentation	https://github.com/amosproj/amos2023ws03-gui-frame-diff/wiki/Build-Documentation
Design Documentation	https://github.com/amosproj/amos2023ws03-gui-frame-diff/wiki/Design-Documentation

#	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	5.10.0	Eclipse Public License	Only for devs, not part of the products
5	Code Linting and Formatting	Ktlint	1.1.1	MIT	Only for devs, not part of the products
6	Video Conversion & Codec Handling	javaCV	1.5.9	Apache 2.0	
7	dependency for javaCV	javaCPP	1.5.9	Apache 2.0	
8	Package Management and building	Gradle			Only for devs, not part of the products
9	Automated Licence Checking	com.github.jk1.dependency-license-report	2.5	Apache 2.0	Only for devs, not part of the products
10	Performance optimization and fluidity of UI	kotlinx-coroutines-core	1.8.0-RC	Apache 2.0	
11	Performance optimization and fluidity of UI	kotlinx-coroutines-swing	1.7.1	Apache 2.0	provides Dispatchers.Main
12	Multiplatform UI framework	compose.desktop		Apache 2.0	
13	Themeing of compose	compose.material3		Apache 2.0	
14	Encoding metadata in json format	jackson-module-kotlin	2.12.3	Apache 2.0	
15					
16					
17					
18					
19					

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