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		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 pactices
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 responsibilty 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 threat 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 then 24h hours on their MS Teams response they can escalate it to the WhatsApp group.
	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.
	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 projects gets impacted, Disagreements has to be discussed immediatly
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 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 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

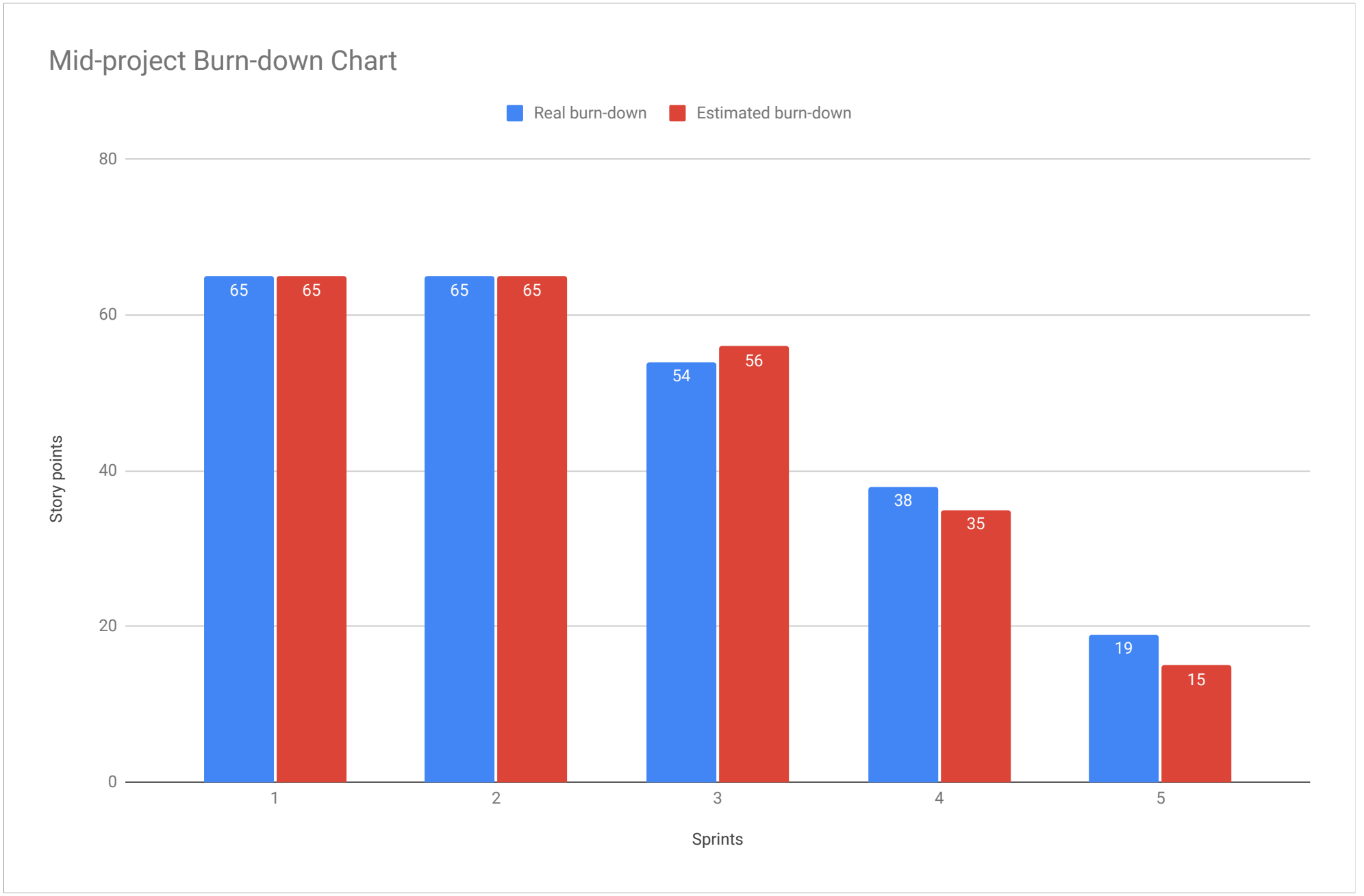
Product Vision	Project Mission
The GUI Frame Diff tool is envisioned as a powerful, intuitive, and efficient solution for comparing sequences of screenshots. Our primary objective is to ensure seamless integration with existing interfaces and structures. The user interface, inspired by the functionality 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. 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
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.
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	
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

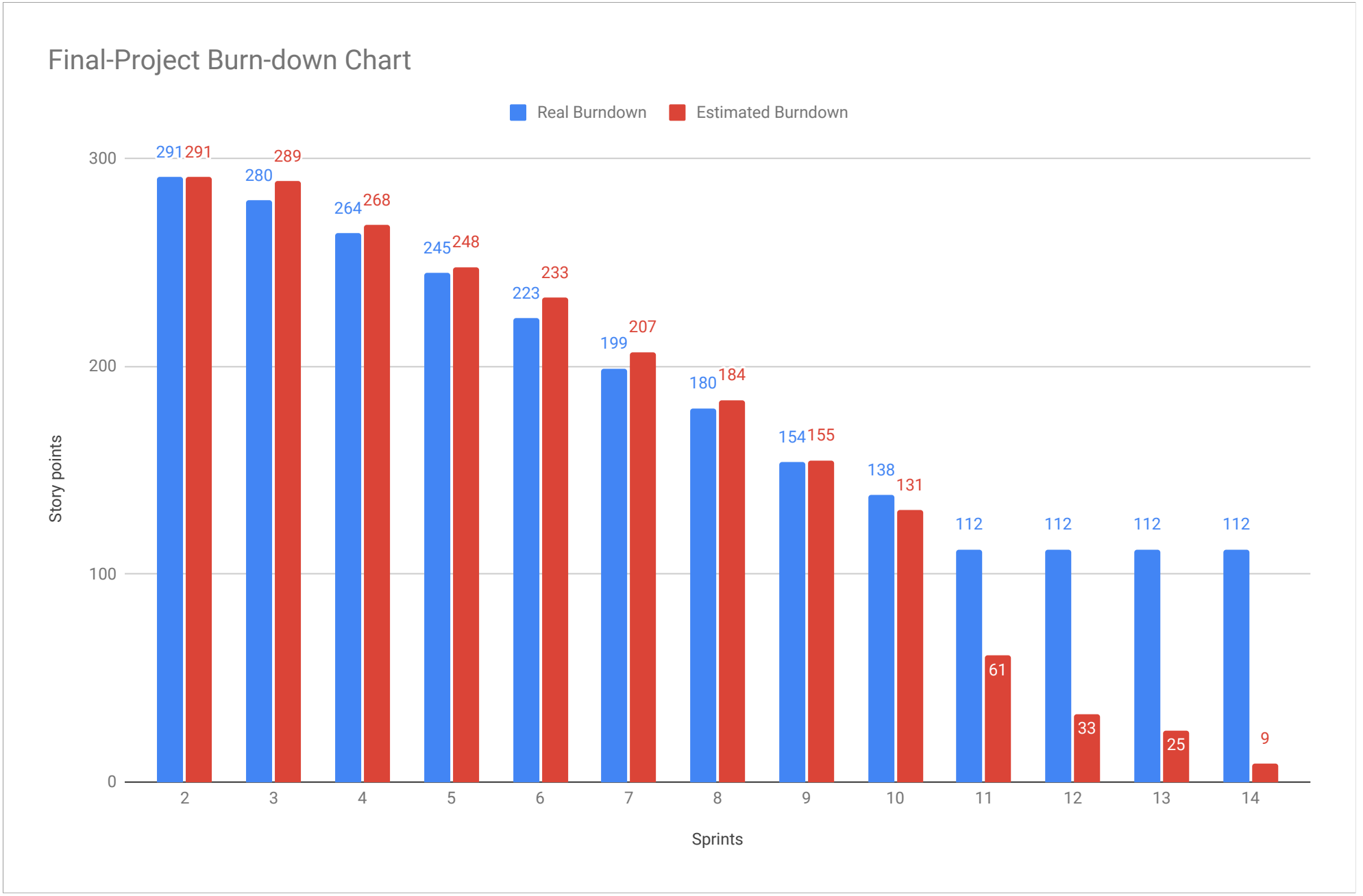
Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
Release						
Total			291	291		
Sprints						
1			0	291	0	291
2		Setup Project	2	291	11	291
3		Input and Output of Library 1 and 2	21	289	16	280
4		Data Processing of Library 1 and 2	20	268	19	264
5		Expand Library 1 and 2 and Setup Library 3	15	248	22	245
6		Complete Library 1 & Library 2	26	233	24	223
7		Complete basis UI	23	207	19	199
8		Extend the UI (Part 1)	29	184	26	180
9		Extend the UI (Part 2)	24	155	16	154
10		Change Library 1 to Webservice (split up core functionality and client library)	70	131	26	138
11		Optimize Library 2 algorithm	28	61	0	112
12		Create UI Editor for masking	8	33	0	112
13		Complete Library 1 & Library 2 and UI	16	25	0	112
14		Finish project	9	9	0	112
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		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			
		Add overview timeline (Library 3)	5			
		Change to reference and current video	3			
		Improvements of the GUI: Improve appearance	3			
		Improvement of the video file selection process	3			
		Improvment of the error handling	5			
		Use Material 3 Theme for UI (Library 3)	3			
		Show loading spinner while frame differences are computed (Library 3)	3			
		Add simple test data to the GitHub project	3			
12	**Sprint 12**	Spike: Improve design with Material 3	3			

Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
		Set mask to null in default case (Library 3)	3			
		Add delete mask button (Library 3)	2			
		Fix behavior of the buttons when clicking quickly one after the other	3			
		Change save location of diff video	3			
		Improvements of the build files	5			
		Change positioning of the tooltip in advanced settings (Library 3)	3			
		Create a UI-Tests for the happy path (Library 3)	5			
		Clean up file system after exiting the software	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
300
200
100
0
291 291
280 289
264 268
245 248
223 233
199 207
180 184
154 155
138 131
112 61
112 33
112 25
112 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
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		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			#DIV/0!	#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			3	Medium size		
Seitz	Fabian			5	Large size		
				8	Very large size		
				13	Too large (size)		