Project Name	Automatic Panelist Detection
Team name	The Octectors.
Production system (if any)	...
Test system (if any)	GitHub Actions
GitHub repository	https://github.com/amosproj/amos2021ws04-auto-panelist-detection
GitHub kanban board (project)	https://github.com/amosproj/amos2021ws04-auto-panelist-detection/projects/1
Team T-shirt (white)	2 (1*L, 1*M)
Team T-shirt (black)	4 (2*L, 2*M)
Team T-shirt design	https://www.shirtinator.de/loadBasket/VoLykYAWYye
Additional materials	...
Zoom-link	recurrent: thursday 12:30 - 14:00 https://tu-berlin.zoom.us/j/61949080874?pwd=WkZtdERTcStYcC85MlFxWEhwclVzUT09
	https://happy-amos.appspot.com/
User and Password to Junyi's Pi 4B	pi - amosamos
SSH to Junyi's Pi 4B	ssh -p 6050 pi@82.165.19.105
VNC Viewer to Junyi's Pi 4B	82.165.19.105:6090, Download link: https://www.realvnc.com/de/connect/download/viewer/
User/design/build documentation	https://www.icloud.com/pages/0_wbj3Jtlba1IaiE_t3sy2yqg#User/design/build_documentation_

Last Name	First Name	GitHub User Name	Email Address
Hoang	Liam	liamh1999	liam_hoang1999@hotmail.com
Freund	Janis	janisfreund	janis.e.freund@campus.tu-berlin.de
Jiang	Junyi	JJYi1	junyi.jiang@campus.tu-berlin.de
Gottschling	Daniel	danielgottschling	daniel.gottschling1024@gmail.com
Elhwawshy	Muhammad	hwawshy	m.elhwawshy@campus.tu-berlin.de
Ben Cheikh	Iyadh	iyadh-97	iyadh97@gmail.com
Castro Otero	Daniel Mauricio	Deryu99	dank9928@gmail.com
Mesecan	Hüseyin	AirTrake	hmesecan@web.de

Goals	Work together to deliver the best software product!
	Fulfill all requirements.
Meeting norms	Thursdays Meeting: 12:30 (Zoom) and Tuesday 8:00 (MAR)
	Meetings on thursdays are mandatory. Tuesday: If you can come to campus.
	Being late is not acceptable.
Working norms	Decisions will be made after dicussing and agreeing with all the team.
	Team members will receive criticism without fingerpointing and staying objective.
	How independently should we work? Each person is assigned one given task.
Coordination norms	Issues are assigned to the team members by PO or by volunteerring.
	The release manager is responsible for keeping the meetings on track
Communication norms	Telegram-Chat; Zoom-Videomeeting(Tuesday,Thursday); In-person meeting on Tuesday in the University (MAR)
	How should a team member communicate an illness? Tell the group. His work will be splitted between the other group members
Consideration norms	Are side conversations appropriate? Yes. We keep it fun but we get the job done!
	How will we handle disagreement? Talk with the person; ask the group; PO has the last word.
Cont. improvement norms	Track the progress of other team members using the Kanban board and regular standup mails
	A group discussion is triggered if problems occur that do take longer to solve than expected
Rewards	How will we mark achievements? Celebrate/Go out and eat/drink.
Sanctions	If you are late -> bring food/snacks to the meeting on Tuesdays :)

#	Meeting Day	Comment	Coach	Product Owner	Software Developer	Release Manager	Scrum Master
1	2021-10-21		Yes	Iyadh Ben Cheikh	Everyone else	Liam Hoang	Coach
2	2021-10-28		Yes	Iyadh Ben Cheikh	Everyone else	Daniel Gottschling	Coach
3	2021-11-04		Yes	Iyadh Ben Cheikh	Everyone else	Janis Freund	Coach
4	2021-11-11		Yes	Iyadh Ben Cheikh	Everyone else	Janis Freund	Coach
5	2021-11-18		Yes	Iyadh Ben Cheikh	Everyone else	Hüseyin Mesecan	Coach
6	2021-11-25		Yes	Iyadh Ben Cheikh	Everyone else	Junyi Jiang	Coach
7	2021-12-02	Mid-project release due	Yes	Iyadh Ben Cheikh	Everyone else	Muhammed Elhwawshy	Coach
8	2021-12-09			Iyadh Ben Cheikh	Everyone else	Daniel Castro	Liam Hoang
9	2021-12-16			Iyadh Ben Cheikh	Everyone else	Liam Hoang	Daniel Gottschling
10	2022-01-13		Yes	Iyadh Ben Cheikh	Everyone else	Daniel Gottschling	Janis Freund
11	2022-01-20			Iyadh Ben Cheikh	Everyone else	Janis Freund	Iyadh Ben Cheikh
12	2022-01-27			Iyadh Ben Cheikh	Everyone else	Iyadh Ben Cheikh	Hüseyin Mesecan
13	2022-02-03		Yes	Iyadh Ben Cheikh	Everyone else	Hüseyin Mesecan	Junyi Jiang
14	2022-02-10	Demo day / final release		Iyadh Ben Cheikh	Everyone else	Junyi Jiang	Muhammed Elhwawshy
15	2022-02-17	Project retrospective due		Iyadh Ben Cheikh	Everyone else	Muhammed Elhwawshy	Daniel Castro

Product Vision	Project mission
The software aims to benefit both television audience analysts and panelists. It automatically captures the real TV-watching behavior of the panelists and delivers therefore more meaningful data for the analysts. The improved quantity and quality of the collected data would enable the implementation of better prediction models and applications in this field. Panelists also are provided with more simple and efficient ways to take part in such programs.	The goal of this project is to create a cheap yet efficient device to optimize television audience measurement. This will be achieved by automatically detecting and recognizing panelists using pre-trained computer vision models and an RGB and infrared camera. All household panelists can be registered in a local database to facilitate the recognition process. Alongside gender and age, attentiveness and emotions will also be assessed. To account for user privacy, the gathered data is anonymized and sent to a GfK server. The device is not only non-intrusive but also time and power-efficient. It should also work under diffficult lighting conditions.

Term	Definition
Panelist	Somebody watching TV
Guest	Someone outside of the household
Householf member	Someone from the household
Analyst	Company that processes the raw data produced by our software
Audience Engagement	Data collected by our software like number of people watching a specific TV show
Face detection	Extraction of all faces in an image
Face recognition	Recognize a person from a database in an image of one extracted face
Emotion/gender/age recognition	Extraction of emotion/gender/age of a panelist from an image
Attentiveness	Predition of how attentive a person i swatching TV
ML Model or Model	A (pre-trained) machine learning model that can be used for detection/recognition
Device	Device (eg. Raspberry Pi), on which the software runs. It is installed next to the TV and it includes a camera and a display screen.
Pipeline	When the pipeline is executed, all the software components are applied to register, detect, recognize panelists and their features (emotion, gender, age, etc.). It is meant as a prototype to test the software and all its components in a real life scenario.

#	Theme	Goal	Feature Name	Est. Size (Feature)	Est. Size (Sprint)	Real Size (Feature)	Real Size (Sprint)	Burn-Down	Sprint
2	Project Setup	Having a working environment	7: Create team logo	2	8	2	6		
2	Project Setup	Having a working environment	8: Create team t-shirt	1	8	1	6	57	
2	Project Setup	Having a working environment	9: Create team contract	0	8	0	6		
2	Project Setup	Having a working environment	10: Research recognition technology/framework	5	8	3	6		
3	First Implementation	Implementing first working Demo	11: First Software Architecture	3	11	1	6	51	
3	First Implementation	Implementing first working Demo	13: Detect number of panelists	8	11	5	6		
4	Implementing main Features	Basic Features	14: Create development environment	2	16	3	12		
4	Implementing main Features	Basic Features	12: Frame Capture	3	16	3	12	45	
4	Implementing main Features	Basic Features	19: First face recognition function	3	16	3	12		
4	Implementing main Features	Basic Features	18: Pre-train face detection model	8	16	3	12		
5	Testing and improve performance	enhance performance	24: Other face detection models	3	19	3	21		
5	Testing and improve performance	enhance performance	25: Other face recognition models	3	19	3	21		
5	Testing and improve pe	Test data	22: Test data	2	19	2	21	33	
5	Testing and improve performance	Test implementation on Raspberry Pi	28: Testing on Raspberry Pi	5	19	5	21		
5	Testing and improve performance	writing first tests	23: Unit tests on test data	3	19	5	21		
5	Testing and improve performance	working database to save Family members	17: Create family database	3	19	3	21		
6	Preparing mid-project release	Build first prototype with full worki	31: Final detection/recognition models	3	20	3	14		
6	Preparing mid-project release	Build first prototype with full worki	32: Pipeline with all components	5	20	5	14	14	
6	Preparing mid-project release	Build first prototype with full worki	36: Final project release plan	3	20	3	14		
6	Preparing mid-project release	Build first prototype with full worki	37: User/design/build documentation	3	20	3	14		
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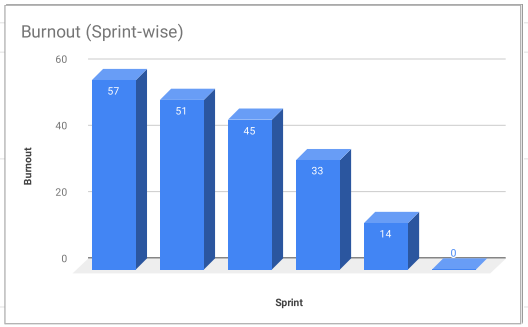

#	Theme	Goal	Feature Name	Est. Size (Feature)	Est. Size (Sprint)	Real Size (Feature)	Real Size (Sprint)	Burn-Down
7	Next phase preparatio	Automatic testing mechanisms	Test coverage estimation	2	18	1	11	
			CI using github actions	2	18	3	11	
			Panelist info display	2	18	2	11	107
			Lowest image resolution	2	18	2	11	
			Adaptation for Raspberry Pi	3	18	3	11	
8	UI + Bug fixing	Useful UI is added for the end user + fixing of the discovered bugs	Face recognition fix	3	11	5	13	96
			UI for panelist	8	11	8	13	
9	Benchmark Testing	Device is tested in a systematic way to check the viability and accuracy of all the models + their running time + power usage on different sets of images	False positives (Humans)	3	16	5	21	
			Pipeline for testing	3	16	5	21	83
			Test data for age/gender/emotion detection	2	16	2	21	
			Test data for face recognition	2	16	2	21	
			Benchmark testing (face detection)	2	16	3	21	
			Benchmark testing (face recognition)	2	16	2	21	
			Benchmark testing (age/gender/emotion recognition)	2	16	2	21	
10	Benchmark Testing II	Further bechmark testing with more levels of difficulty (+ Raspberry Pi)	Even more test data	2	9	2	15	
			Benchmark Testing II	2	9	8	15	62
			Code refactoring	3	9	3	15	
			Pipeline testing on Raspberry Pi	2	9	2	15	
11	Final important features	Implement last features according to the industry partner's requirements	Automatic panelist registration	3	11	3	11	
			Transmission data to server	3	11	3	11	47
			Lowest image resolution II	2	11	2	11	
			Code refactoring II	3	11	3	11	
12	Finalizing product	Finish the last features and prepare product for final release	Attentiveness recognition	5	21	5	24	
			Statistics calculation	2	21	3	24	
			Final testing of product in a real life scenario	1	21	1	24	36
			Final project release preparation	3	21	3	24	
			Code review	2	21	2	24	
			Thorough bug fixing	3	21	2	24	
			Demo day presentation	5	21	8	24	
13	Final project release	Finish documentation and release best project ever	Final planning documents	2	12	2	12	
			Final project release plan	2	12	2	12	12
			Final user, design, build documentation	5	12	5	12	
			Demo day preparation	3	12	3	12	
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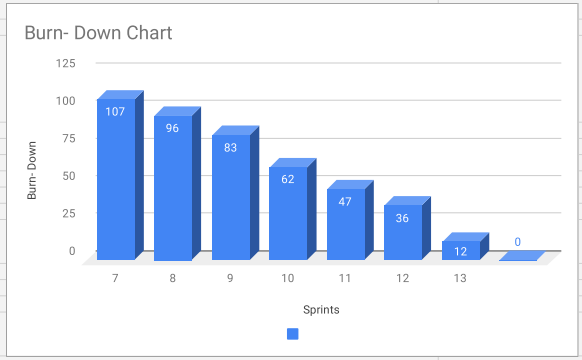

Sprint	Status	Source	Impediment	Resolution
1	Resolved	Iyadh	Team members are not responsive	The communication imoproved with time
1	Resolved	Liam	Confused with Course Organisation	Got to know about the flow of things
1	Resolved	Daniel C	Time management and course work	Got okay with time
1	Resolved	Junyi	Physical meeting not in sync with the virtual meeting	The minutes of the meeting was shared by the physical team
1	Resolved	Muhammad	Confused with Course Organisation	Got to know about the flow of things
1	Resolved	Hüseyin	Problem with Medium of communication	The language barrier got removed with time
2	Resolved	Iyadh	He is not happy with the Progress of the project and wanted everyone's colloboration in getting the project started.	The impedimentg got removed as the sprint increased and they got an idea about the whole project
3	Resolved	Iyadh	Time needs to be devoted to research the topic before moving to development phrase, like researching topics which in turn reduces the possibility of redoing something which shouldn't be done in the first place.	The research topics are already done and the programming part has already started.
3	Resolved	Liam	Same as Iyadh	Same as Iyadh
3	Resolved	Janis	The task should be assigned unifomly like 4 SD shouldn't be assigned to only one task.	The next sprint, the tasks were uniformly distributed .
4	Resolved	Daniel	Problem in coordination between physical meeting and virtual meeting	The problem is solved with better team coordination.
5	Resolved	Janis	The backlog items appreared few minutes before the Team meeting	The backlog update was done during the week anda as a result the impediment was solved
6	Resolved	Iyadh	The power usage of Rpi is a bit higher than the expectation from the industry partner.	Benchmark testing to decide which models to take.
10	Resolved	Daniel C	Problems with setting up the environment on a new PC	using pip install -r requirements.txt to help setting up the environment

#	Feature Definition of Done	Sprint Release Definition of Done	Project Release Definition of Done
	Project builds with no errors	Project builds with no errors	Project builds with no errors
	Feature was demoed and accepted by product owner	Release was demoed and accepted by product owner	Project was demoed and accepted by product owner
	Pull request review by other team member	All DoD of sprint features are met	Project should fufill all project description tasks
	Unit tests written if necessary and all tests are passed	No Regression	Project should have minimal to no bugs
	Test coverage is above 40%	Code documentation is up to date	Test coverage is above 80%
	Code is understandable and commented	Test coverage is above 60%	Non-functional requirements met
			Code documentation is up to date

Type	Titel	Link / reference
Build and Deploy		https://github.com/amosproj/amos2021ws04-auto-panelist-detection/blob/main/Documentation/build_deploy_documentation.md
Design		https://github.com/amosproj/amos2021ws04-auto-panelist-detection/blob/main/Documentation/design_documentation.md
User		https://github.com/amosproj/amos2021ws04-auto-panelist-detection/blob/main/Documentation/user_documentation.md

	Context	Name	Version	License	Comment
1		deepface	0.0.68	MIT	
2		Flask	2.0.2	BSD	
3		matplotlib	3.4.3	PSF	
4		numpy	1.21.4	BSD	
5		OpenCV-Python	4.5.4	MIT	
6		paho-mqtt	1.6.1	Eclipse Public License 2.0 / Eclipse Distribution License 1.0	
7		pandas	1.4.0	BSD	
8		Pillow	9.0.1	HPND	
9		psutil	5.9.0	BSD	
10		PyTorch	1.10	BSD	
11		retinaface	0.0.5	MIT	
12		Silent-Face-Anti-Spoofing	2020-07-30	Apache 2.0	
13		tensorflow	2.8.0	Apache 2.0	
14		torchvision	0.11.1	BSD	
15		wxPython	4.1.1	L-GPL	
16		dlib	19.23.0	Boost Software License	
17		auto-mix-prep	0.2.0	GPLv2	
18		GazeTracking		MIT	

Last Name	First Name	Value					
Hoang	**Liam**	3					
Freund	**Janis**	3		**3.00**	**OK**		
Jiang	**Junyi**	3					
Gottschling	**Daniel**	3					
Elhwawshy	**Muhammad**	3		0	No size		
Ben Cheikh	**Iyadh**	3		1	Trivial size		
Castro Otero	**Daniel Mauricio**	3		2	Small size		
Mesecan	**Hüseyin**	3		3	Medium size		
				5	Large size		
				8	Very large size		
				13	Too large (size)		