

SPRING 2023 HACKATHON NSF AWARE-AI NRT PROGRAM

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OUTLINE

- Schedule
- Introduction to Data and Challenge
- Team Selection
- Questions

SCHEDULE

- Thursday April 13rd 2023
 - Intro to Spring 2023 Hackathon
 - 3:15pm – 5:00pm
- Friday April 14th 2023
 - Breakfast 6:30 am
 - Lunch 12:00pm
 - Hackathon Finish, 4:00pm
 - Presentation – 4:00-5:00pm

INTRO TO DATA AND CHALLENGE

- Challenge: Estimation of human emotions from physiological data.
- Data
 - Three Physiological Sensors
 - ECG
 - GSR
 - Pupil
 - Subjective Emotions
 - Comfort, Surprise, Anxiety, Calmness, Boredome

INTRO TO DATA AND CHALLENGE

- Raw Data and Processed Data.
- Raw Data
 - 30 subjects – Training
 - 2 subjects - Tested
- Processed Data
 - 16 Features
 - 5 subjective Entries
 - Each subject has several trials

PROCESSED DATA

- ReadMe File with Details

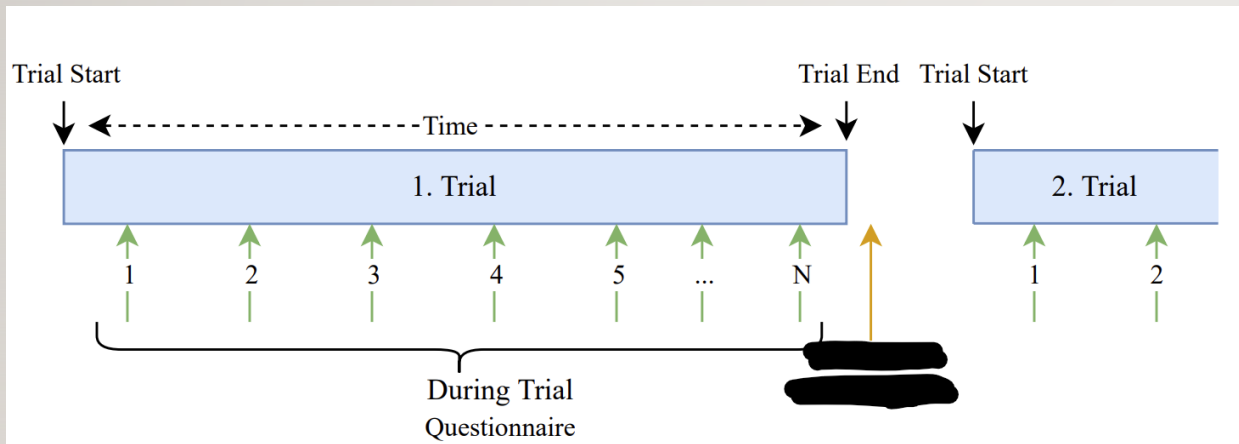
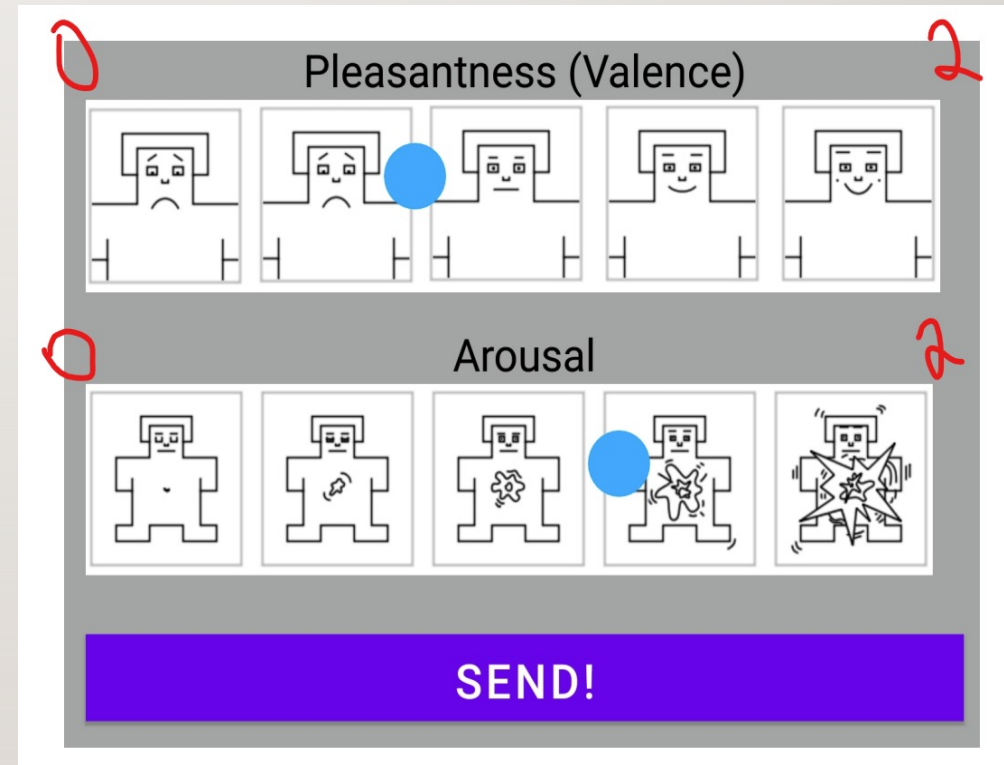
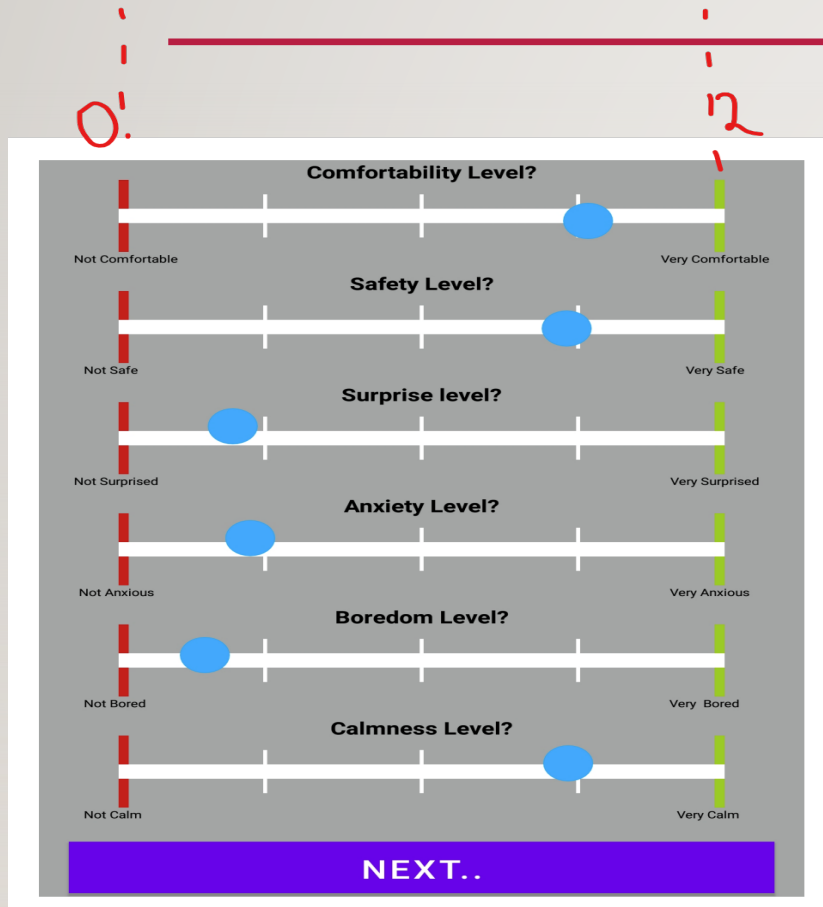


Table 3.1: Physiological metrics extracted from the ECG, GSR, and Pupillometry signals

Type	Metric	Unit	Description
ECG	<i>Mean HR</i>	bpm/min	Mean of Heart rate
	<i>Mean RR</i>	ms	Mean of RR/IBI intervals
	<i>SDNN</i>	ms	Standard deviation of RR/IBI intervals
	<i>RMSSD</i>	ms	The root-mean-square of the difference of consecutive RR/IBI intervals
	<i>pNN50</i>	%	Percentage of successive RR/IBI intervals that differ by more than 50 ms
GSR	<i>Tonic Mean</i>	Micro-siemens	Mean of tonic component of GSR signal
	<i>Tonic Std.</i>	Micro-siemens	Standard deviation of tonic component of GSR
	<i>Phasic Mean</i>	Micro-siemens	Mean of phasic component of GSR signal
	<i>Phasic Std.</i>	Micro-siemens	Standard deviation of tonic component of GSR
	<i>Onset Rate</i>	onset/sec	SCR onset rate per second
	<i>Peak Amp. Mean</i>	Micro-siemens	Mean of Peak amplitude (SCR)
	<i>Rise Time Mean</i>	ms	Mean of rise time (SCR)
	<i>Recovery Time Mean</i>	ms	Mean of recovery time (SCR)
Pupil	<i>Pupil Mean</i>	pixel	Mean of pupil size
	<i>Pupil Std.</i>	pixel	Standard deviation of pupil size

PROCESSED DATA



PROCESSED DATA - ECG

	A	B	C	D	E	F
1	time	ECG1	s_id	t_id	trial_type	num_completed_pa
2	2022-05-18 11:04:07	-0.075	P05	2	VO_UNCI	15
3	2022-05-18 11:04:07	-0.075	P05	2	VO_UNCI	15
4	2022-05-18 11:04:07	-0.1	P05	2	VO_UNCI	15
5	2022-05-18 11:04:07	-0.125	P05	2	VO_UNCI	15
6	2022-05-18 11:04:07	-0.125	P05	2	VO_UNCI	15
7	2022-05-18 11:04:07	-0.15	P05	2	VO_UNCI	15
8	2022-05-18 11:04:07	-0.15	P05	2	VO_UNCI	15
9	2022-05-18 11:04:07	-0.175	P05	2	VO_UNCI	15
10	2022-05-18 11:04:07	-0.175	P05	2	VO_UNCI	15
11	2022-05-18 11:04:07	-0.2	P05	2	VO_UNCI	15

PROCESSED DATA - GSR

A	B	C	D	E	F
time	GSR	s_id	t_id	trial_type	num_completed_pa
2022-05-18 11:04:07	1015.6708	P05	2	VO_UNCI	15
2022-05-18 11:04:07	1018.426407	P05	2	VO_UNCI	15
2022-05-18 11:04:07	1018.88713	P05	2	VO_UNCI	15
2022-05-18 11:04:07	1020.734194	P05	2	VO_UNCI	15
2022-05-18 11:04:07	1021.197007	P05	2	VO_UNCI	15
2022-05-18 11:04:07	1020.271801	P05	2	VO_UNCI	15
2022-05-18 11:04:07	1017.966102	P05	2	VO_UNCI	15

PROCESSED DATA - GSR

[illegible]