Common User Profile Format

PRADIPTA BISWAS, PHD(CANTAB)

ASSISTANT PROFESSOR, INDIAN INSTITUTE OF SCIENCE

CO-CHAIR, IRG AVA, INTERNATIONAL TELECOMMUNICATION UNION

MEMBER, UKRI INTERNATIONAL DEVELOPMENT PEER REVIEW COLLEGE

HTTPS://CAMBUM.NET/, PRADIPTA@IISC.AC.IN

Common User Profile Format

- Creating a common user profile format to offer personalized service to people with different range of abilities
- Deploying in a device and application independent format
- Adapting user interface parameters like font size, colour contrast, audio volume, arrangement of screen elements and so on
- Following up earlier similar work at EU standardization committee on user modelling, ITU FG AVA and presently Q11/9 of ITU SG9 and Q26 of ITU SG 16 and ITU SG6.

Proposed Approach

- A common minimal profile that will be acceptable by many
- Any service provider can add more variables specific to application or new scientific invention.
- Details should not reveal any personal information or details on specific cause of impairment
- A **user profile creation application** will be run locally to populate these fields

- User Preference
  - Colour combination
  - Audio volume
- Minimum Font Size
  - Critical element
  - Non-critical element
- Minimum Colour Contrast
  - Critical element
  - Non-critical element
- Subtitle
  - Minimum font size
  - Speed
  - Language
  - Maximum latency
  - Window length and width
- Cursor
  - Minimum size
  - Colour contrast
  - Speed
- Screen Element
  - Minimum size
  - Inter element spacing
- Preferred I/O Modality
  - ASR
  - TTS
  - Eye Gaze
  - Haptics
- Language
  - Primary
  - Secondary

Security Aspects

- Format does not specify the physical or network media for storage
- Format does not specify any encryption algorithm or range (end-to-end vs others)
- Profile is stored anonymously
- Profile needs not to be stored on server, can only be stored on client side
- A mapping mechanism can be implemented to share only interface parameters and profile information can be stored on client machine only.
- However, a trusted source can also keep a common repository and use it to personalize applications across multiple platforms

Ways of Integration

Invoking a mapping application between users' range of abilities and interface parameters

- Executing at server side
- Executing at client machine

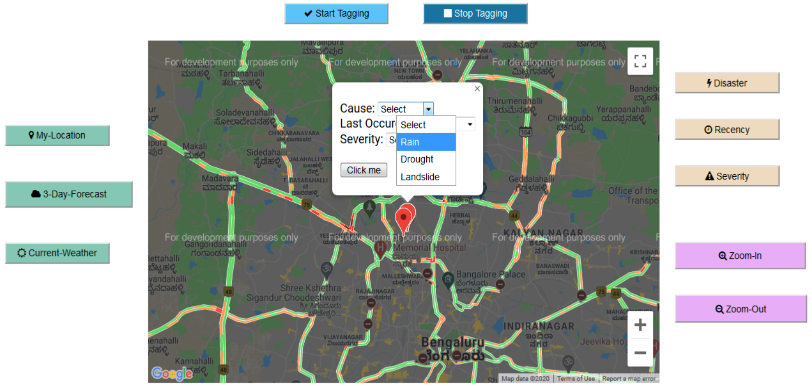
Choosing appropriate stylesheet based on user profile

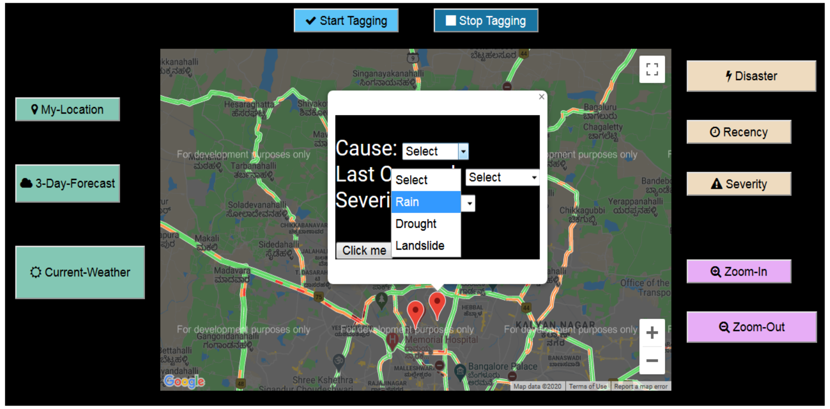
Modifying settings at

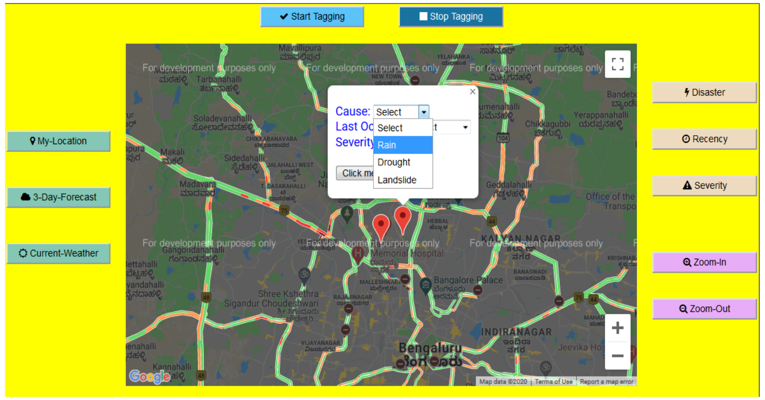
- Application level
- Browser level
- Operating System level

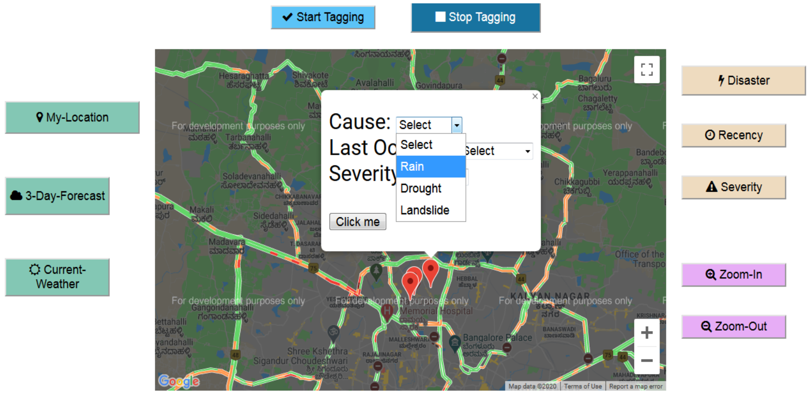
Profile Code	GS	Tremor	ROMW	Minimum Font Size	Colour Blindness	Adaptation	Predicted Best Modality	Colour Contrast	Button Spacing
	(in kg)		(in degree)	(in point)					
A	16	YES	71	14	Protanopia	Gravity Well	Pointing/Screen	Blue White	20*
B	25	NO	52	14	Protanopia	Damping	Pointing/Gesture/ Screen	Blue White	20
C	59	NO	66	12	Deuteranopia	Damping	Pointing/Gesture/ Screen	Blue White	20
D	59	NO	66	0	N/A	Damping	Speech/Audio	N/A	20
E	25	YES	52	14	None	Gravity Well	Pointing/Screen	Any	20
F	59	NO	120	14	Tritanopia	Damping	Pointing/Gesture/ Screen	White Black	5*
G	9	NO	63	14	None	Gravity Well	Pointing/Screen	Any	20

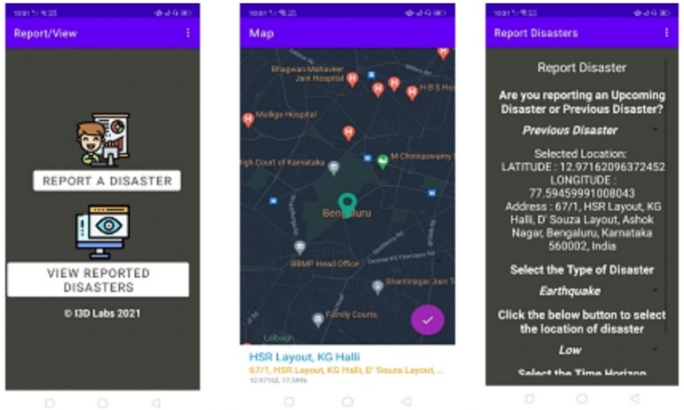
Interface Personalization

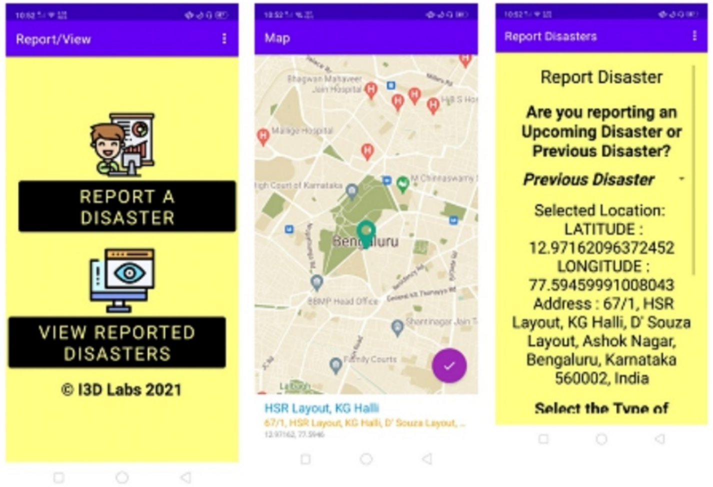












Simulation

Simulation of visual / auditory perception and eye gaze and cursor movement of users

Developers can

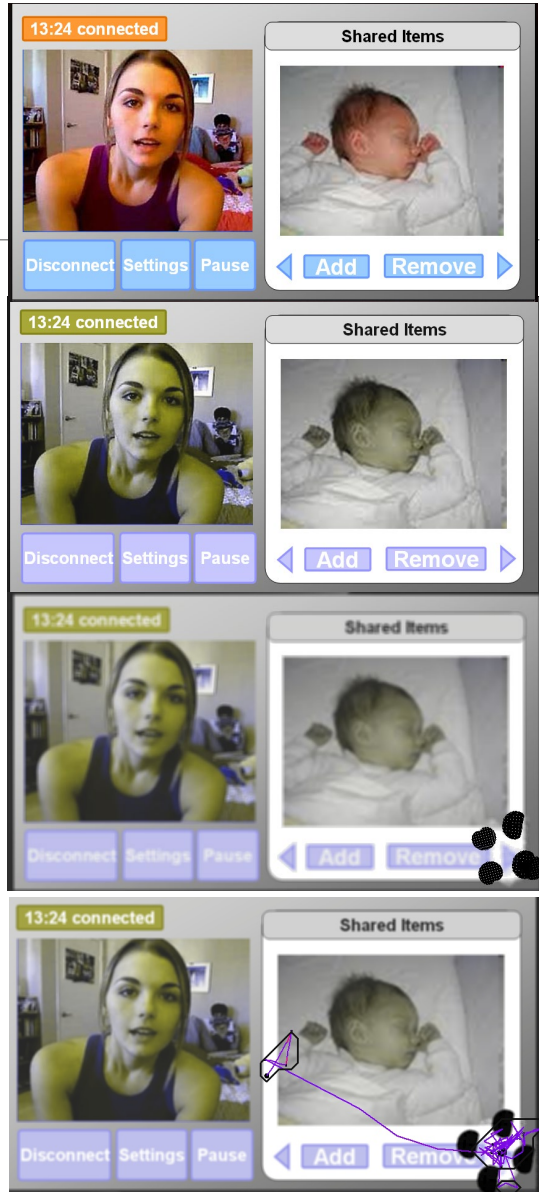
- understand
- visualize
- measure effect of impairment on design

Used in EU GUIDE and DST-EPSRC IUATC projects

Presented at ITU FGAVA, IRGAVA and ISO SC35 and SC36 committees

Validated **Inclusive User Model** that is validated for a wider range of abilities of users than existing work

Simulation Examples



Conclusion

- Reducing digital divide
- Personalizing systems and services to promote accessibility
- Sharing personalizing information and meta data in secure and platform independent way
- Helping conformance to UN CRPD