URBAN ASSEMBLAGE: THE CITY AS ARCHITECTURE, MEDIA, AI AND BIG DATA.

• Paper / Proposal Title:
A personalised virtual smart home space representation to preserve user's privacy and integrity in the assisted living system

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• Abstract (300 words):
This paper is an advancement of the interdisciplinary collaborative paper on conceptualizing a smart home system for elderly natives of Fudam, Diu Island, (Triboan and Meggi, 2019) which utilized several cameras as part of its proposal. However, cameras within private dwellings can be seen as evasive of privacy and integrity. Where virtualisation of the smart home environment has been investigated in, (Darnall et al., 2011), this paper advances that within the cultural context of Diu Town where the elderly are not technologically literate with low hardware costs required and climatic practicalities are an issue. Hence, this paper sets out to investigate a personalised virtual smart home space representation to preserve the user's privacy and integrity in the assisted living system.

This will be conducted by, (1) critically investigate the theoretical aspect of virtualizing architectural spaces and their benefits and drawbacks,(Grosz and Eisenman, 2001), (2) critically analyzing methods of capturing, recording and modelling architectural spaces
advancing from, (Meggi, 2017), to explore current mobile applications to model homes, (3) to investigate architectural elements for smart homes for creative sensor application for the case study home in Diu with consideration to contextual issues, (4) to recognize and evaluate privacy & integrity problems (Lin and Bergmann, 2016; Cannizzaro et al., 2020) with invasive & sensitive data collection (Stirapongsasuti, Nakamura and Yasumoto, 2020), (5) finally to conclude the advantages and disadvantages of virtualising assisted living spaces for better integrity and privacy of the user.


• Author(s) Biography (200 words each):

Anisha Meggi is a PhD researcher whose thesis focuses on the neglected and declining privately owned architectural heritage of cultural neighborhoods in Indian cities. Her primary case of Diu Town has been applied to interdisciplinary work on smart cities and smart homes. Anisha’s research has benefitted from a succession of field trips to Diu Town to undertake urban mapping and building surveys of privately owned Indo-Portuguese structures in danger of being demolished. Her research focuses on representing and analyzing these unique globally shared heritage structures and contributing to discourses on how to adapt and conserve the structures which belong to migrant natives of
transcultural backgrounds. Research on methods of conservation from a balance of bottom-up and top-down approaches with a global-local hybrid conservation method include discourse exploring community-based eco-cultural heritage initiatives for Diu Town. Anisha’s research interests include heritage colonial architecture, adaptive reuse, migration and its effects on urbanism and globalization, technological and architectural advancements within smart homes and smart cities. Anisha who has received the BA (Hons) Architecture RIBA Part 1 and M.Arch RIBA Part 2, also has five years of higher education teaching experience of Lecturing/tutoring in Architecture at De Montfort University.

**Darpan Triboan** is currently a Research Fellow and a Lecturer in Computer Science/Security at De Montfort University (DMU), Leicester, UK. He is a member of the Context Intelligence Interaction Research Group and Software Technology Research Laboratory at DMU. He received his PhD in Computer Science, MSc in Software Engineering and BSc (Hons) in Computer Science from DMU in 2020, 2015, and 2014, respectively. His key areas of research are within Context-aware Pervasive Computing, Artificial Intelligence (AI), Knowledge Representation and Reasoning within Ambient Assisted Living Systems using real-time multimodal Smart Home / Internet-of-Things (IoT) devices and diverse wireless sensor networks (WSNs). He is currently part of a transdisciplinary research project for Advancing Resilience in Low (ADRELO) Income Housing communities using climate change science and big data analytics. His role as a Research Fellow is to investigate AI approaches for developing a disaster support system that takes climate science, socioeconomics, and disaster policy factors into consideration to support low-cost housing communities in flood-prone areas such as Kenya, Northeast Brazil and the eastern USA.