

IoT Framework for Patients with Autism in Primary and Secondary Care Setting

Introduction

Autism Spectrum Disorders (ASDs) refer to a group of neurodevelopmental disabilities that affect an individual's social interaction, communication, interests and behaviour (Ousley and Cermak, 2014). Atypical sensory characteristics (ASC) is one of the most common issues observed in individuals with ASD (American Psychiatric Association, 2013). As many as 90% of ASD individuals may have experienced ASC in audition, vision, touch, taste and smell (Robertson and Baron-Cohen, 2017).

ASC makes it challenging for individuals with ASD to access general health services, and an individual's responses to ASC can negatively impact these individuals in getting timely diagnoses and receiving appropriate support pre- and post-diagnoses (NHS, 2022). There are cases of overshadowing diagnoses in individuals with ASD because of ASC, and stereotyped understandings of ASD in professionals (Gupta and Gupta M, 2023). 80% of adults with ASD reported difficulty visiting a GP, with 51% rating the waiting room environment as a barrier (Doherty et al., 2022).

Problem Context

The project aims to deliver an Internet of Things (IoT) framework for individuals with ASD, which can be used to support these individuals when accessing primary and/or secondary care setting. The framework should focus on delivering a system which works with off-the-shelf devices, and it should integrate more than one of the following aspects:

- Data collections from wearables and sensors, specifically to learn about its user's sensory needs, as well as its user's environment, e.g., GP consultation room, home.
- Data analytics and intelligent recommendations or automation, specifically to communicate to its user with recommendations to address their environment, or to communicate with automatic controls to adjust the environment for the user.
- Data visualisation, specifically to support healthcare professionals in providing better care or to support the user/carer to better understand their needs.
- Security and privacy, specifically how secure communications between devices can be ensured, how data or different granularity can be shared depending on different requirements.
- Simplicity in setting up, specifically managing "out-of-the-box" experience to increase accessibility and utilisation of the system.
- Governing policies related to integration of such IoT frameworks in the UK context for primary and secondary care.

Person Description

The candidate should be comfortable working with data and hardware. Depending on the candidate's background, they may choose to tackle the problem from a security, design, or policy perspective.

Supervisory Team

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Contact

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References

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