DEP 405
BDES PROJECT 1

Wandering Technology for Dementia Care

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To identify problems faced by Healthcare sector in this globalised world

Address the issues faced by patients with Dementia

Make lives easier for people who take care of Dementia Patients

How might we help the caretakers of Dementia patients have a worry-free life?

Wandering technology for Dementia Care...

Wandering, in people with dementia, is a common behaviour that can cause great risk for the person, and is often the major priority for caregivers

Any changes in routine can trigger wandering

Literary Research

Research on Empathy, participatory design for people with Dementia by Dr. Stephen Lindsay

On Telecare systems to help the elderly, Assistive technology for people with Dementia and brain injuries

Making with Meaning- Opening Makerspaces for people with Brain injury to design their own Assitive technology

Efect-Led Design- Study of Behavioural change by Dr. Stephen Lindsay

Source- Computational Foundry and Bay campus Library, Swansea University, Swansea, Wales

Assistive technology refers to devices or systems that help maintain or improve a person's ability to try to to things in lifestyle . These can assist with a variety of difficulties, including problems with memory and mobility. Assistive technology ranges widely from items like electronic pill boxes (that remind you to require medication) to 'smart home' systems (that you'll instruct to show up the heating or switch off the lights). There is also a lot of new technology on smartphones and tablets, which includes applications that have been developed for general use, as well as applications specifically developed for people with dementia or other health care needs. Over time the applications for general use may replace some products that were originally developed for people with dementia.

Telecare Systems are another way to help you stay safe. If you set up one of these systems, it can alert nominated family or friends in certain situations and will also allow you to access support if you need to. This can also prove to be an effective solution during the first few stages of Dementia where the patient tends to do their everyday routine without being disturbed by their peers or family. Telecare systems can include community alarms, sensors and movement detectors, and video calling. An alarm can be linked to a certain person or a call centre or a community centre with a hotline to help people in need. With technology being progressive in the past century, there are many measures to contact SOS or emergency contacts from our mobile phones, for example, when an accident takes place, people usually check the victims' phones or their identity cards to contact their friends or family after they call emergency services.

While this is the case for any accidents for every age, the products to help people with Dementia can be more advanced and this project aims to design a safe and an advanced telecare system to help people in need. These systems makes sure that their peers will be alerted either when a sensor detects a problem or when the person themselves presses a panic button or community alarm. The aim of these systems is to allow you to live independently and comfortably, knowing that your family or friends will be alerted if you have a problem.

Making with Meaning: Exploring the Benefits of Makerspaces for People Living with Brain Injury by **Stephen Lindsay**

Traditional approaches to health care–the 'acute medical model'-assume that illness is likely to be short-lived, and the aim of care is 'cure' and 'return to a pre-illness state'. The medical model does not account for the management of chronic neurological conditions because retuning to a pre-illness state is not possible. For example, ABI are chronic conditions associated with long term consequences which are seldom curable. It is now recognized that effective and sustainable services for people with neurological conditions must include active engagement, co-production, co-creation and partnership working (reference).

Effect-Led Design: Snubbing Values to Discover Ethical AI-Driven Approaches to Behaviour Change by **Stephen**

Behaviour Change Techniques; When examining behaviour change interventions, a distinction can be made between the individual active components of an intervention responsible for changing behaviours, and how these components are delivered [15]. This content is what is commonly referred to as 'Behaviour Change Techniques' and there are several definitions for what constitutes a behaviour change technique.

When trying to understand the prevalence of different BCT, it is important to bear in mind the limitations of retrofitting intervention components, their active mechanisms of changing behaviours, to behaviour change techniques.

Empathy, Participatory Design and People with Dementia by **Stephen Lindsay, Daniel Jackson, Cas Ladha, Karim Ladha, Katie Brittain, Patrick Olivier**

His process of "person centered care" (PCC) focused on respecting the "personhood" and experiences of the person with dementia and understanding that, while their experiences might arise from irrational perceptions of the world around them, for that person those experiences are just as significant as they are for a cognitively unimpaired individual. PCC requires extensive, respectful dialogue with the person being cared for and aims to foster an understanding of their experiences on the part of healthcare professionals.

Articulating personal narratives can be challenging for people with dementia. The use of existing groups can help the individuals articulate themselves. Many people with dementia regularly attend support groups (typically run by voluntary organizations) to help them learn strategies to cope with problems they may face and to provide a venue to talk with other, sympathetic people who understand the challenges they face. Support groups are an ideal place to recruit existing groups as they are a normal venue for the discussion of personal problems for people with dementia

Caregivers can also provide support for the person they care for in conversation, when a person with dementia struggles to articulate themselves their caregiver can often help them. However, caregivers may be able to articulate themselves more easily than the person they care for, and therefore it is important that the designer ensures that the caregivers" voices do not dominate discussions. An important role of the consistent contact within the KITE approach is to balance the voice and concerns of the caregiver with the voice of the person with dementia.

Both the devices had a GPS tracking system and a GSM unit that could be used to raise an alarm on a caregivers" phone with the carrier"s location should they become lost. Despite previous works findings suggesting people with dementia are not concerned about their personal safety [27], this backup needed to be in place before the participants would consider using the devices. The design sessions revealed a desire for a device that went beyond simply tracking its carrier but there was a lack of willingness to engage with less familiar design concepts without this safety net in place. For example, Mary would not consider having a device that gave implicit feedback about John and Alice asked for the device she had to have a tracking unit built into it in the later stages of design process.

Primary Research

Interviews with Azhiemer’s society, UK in Swansea, Wales and London, UK

- 3 Caregivers based in United Kingdom
- 2 Caregivers based in Chennai, India
- 2 Professors from Swansea University
- 6 Patients in their early stage of Dementia

Research Insights

Insights from the research conducted Primarily, Secondarily and from Literary resources

They do not respond well when they are being treated as a patient.

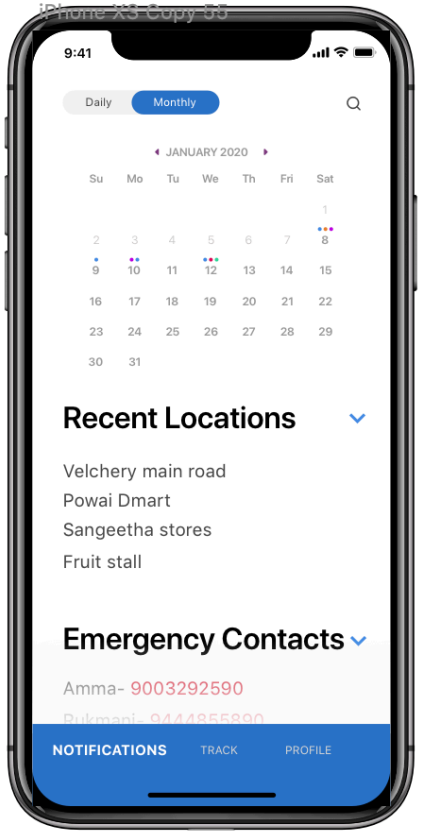
They want to live life in a independent way and follow their everyday routine

There are few cases where their compulsive nature affects the household and the people.

Caregivers want to prevent any kind of accidents, so, they end up locking the patients inside

Problems I want to solve?

I aim to help the caregivers have a worry-free life while making sure the patients have a comfortable and independent lifestyle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Fruit stall
Emergency Contacts
Amma- 9003292590
NOTIFICATIONS
TRACK
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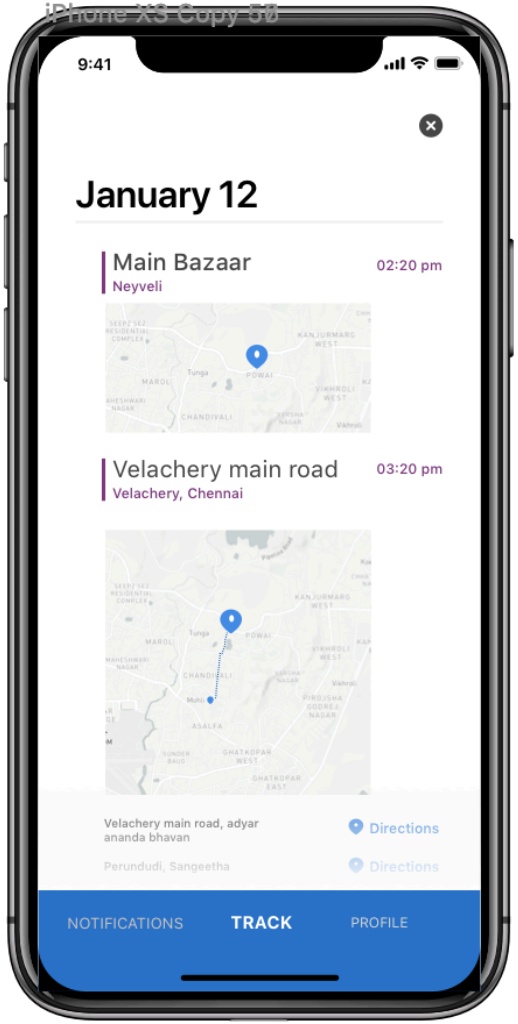
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Main Bazaar
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Velachery, Chennai
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Velachery main road, adyar ananda bhavan
Directions
Perundudi, Sangeetha
Directions
NOTIFICATIONS
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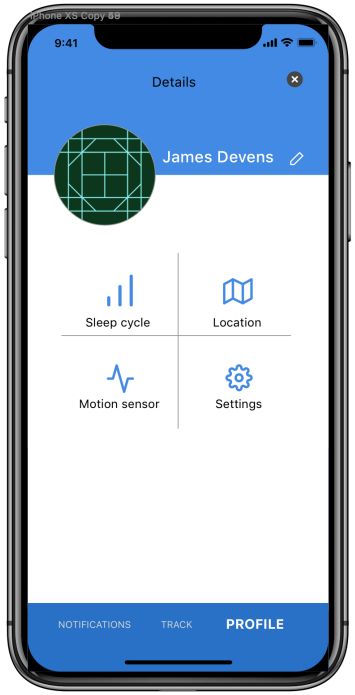
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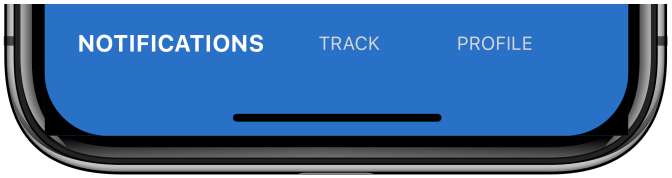
Details
James Devens
Sleep cycle
Location
Motion sensor
Settings
NOTIFICATIONS
TRACK
PROFILE



Today

Home 14 mins ago
Chennai

James Devens has woke up

Nanmangalam 30 mins ago
Chennai

James Devens has left HOME at 12:30 pm

Get Notified!

Get real time notifications in your phone whenever they step outside your home, or when they wake up from their sleep

Supported by Sleep monitoring sensors, motion sensors and GPS trackers

Prevent accidents!

Set up your home as the safe zone and get the directions back in your device or on the patients phone, assisted with Audio.

Supported by GPS tracker

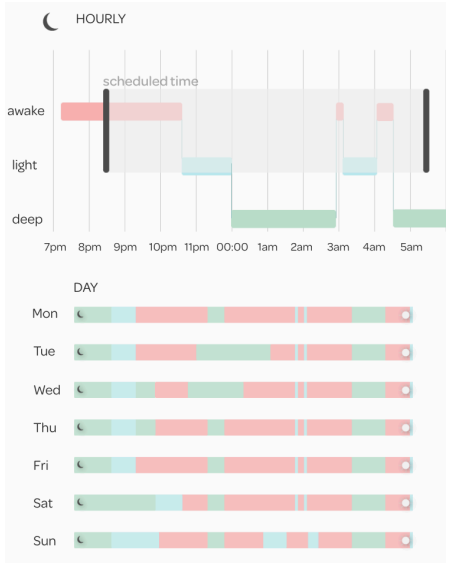
Wearing options

Watch with a locking mechanism to prevent losing the device by patients who keep fiddling.

Use the wearable wandering device to prevent tampering

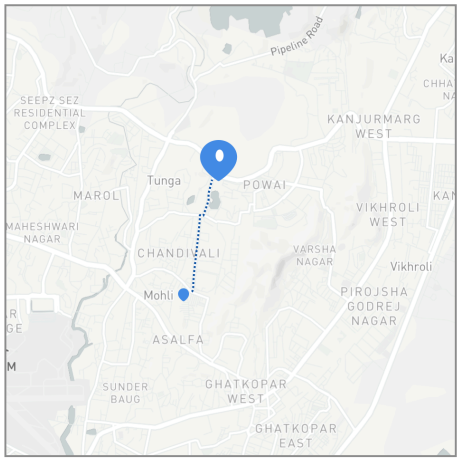
Get detailed Reports!

Get detailed reports of the Patient's Location history and their sleep cycle



Sleep cycle progress

Velachery main road 03:20 pm
Velachery, Chennai



Velachery main road, adyar ananda bhavan — Directions

Perundudi, Sangeetha — Directions

Location history

Future plans?

Sync the app with available smartwatches and conduct User studies to improve the quality of the product

Incorporate fall sensors to notify the caregivers when there is an accident taking place

Emergency SOS and Call options to keep the patient connected