Cascade3d Connected Care Scenarios for TAPPI

Possible scenarios demonstrating how the Cascade3d Connected Care system supports independent living

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The voice of technology enabled care

Member Organisation

Introducing Agnes

Agnes is in her 80s and enjoys having friends and family popping round for a tea and a chat; as her level of mobility has declined, she has regular visits from a care agency to help around her home but she wants to see where technology can help and to share what she finds with others – the care agency are a great help but Agnes doesn't want to have to wait for her visit before getting on with her day and would prefer to let staff within the extra care scheme know everything is ok herself rather than have to wait to speak to them.

Through support with looking over websites on the internet from a care co-ordinator, she has found some simple solutions to support her everyday routine, such as non-slip trays to help her carry cups of tea from the kitchen, reducing the risk of spilling or dropping anything and easy grip jar openers as she struggles to open lids; alongside this Agnes now has an Amazon Echo device, connected to the broadband in her home and linked to different smart plugs and into appliances, so she can ask 'Alexa' to turn the kettle on or to open the blinds from the comfort of her armchair (although her family have asked staff about how they can see how active Agnes is and if she is drinking and eating as Agnes usually says everything is all ok – whether it is or is not in some cases) and with the aid of her Robot Vacuum, her home is kept as clean and tidy as ever, at a time of her choosing and allowing Agnes to keep entertaining friends and being able to tell them all about her supporting gadgets (and meaning for now she no longer needs the same level of support from a care agency).

Cascade3d Connected Care

Cascade3d Connected Care would be a valuable addition to Agnes' home to support her care during her daily activities. Smart sensors and connected devices will show her movements and routines around her home and also show when she is visited by friends, family and care agency staff.

- The system can show when Agnes is having a normal day, so the extra care scheme staff are aware she is living safely and independently.
- Care givers can be notified when Agnes may need some additional assistance, for example if Agnes is feeling unwell and is still in bed later then normal. Early preventative care can then be offered to avoid the need for more serious interventions.
- Agnes' family will also have full access to the system and be able to check to make sure she is getting enough social visits/interaction to keep her from feeling lonely, which is really important to her. While using the Connected Care system, the family can also check Agnes is eating and drinking regularly.
- The Cascade3d Alexa skill can be added to Agnes' Echo device to help her manage her medication, any medical readings she needs to take and remind her to keep active throughout the day. The family can also receive quick Alexa updates on Agnes' day and activities through the Alexa App or their own Amazon Echo devices.
- Cascade3d Connected Care can be personalised to match Agnes' requirements and home layout and even configured to separate her movements from the robot vacuum keeping her carpets clean.

Introducing Mr H

Mr H has a degree of visual impairment and wants to find technology to help him keep his passion for reading books and socialise with friends from his home and safely accessing the community; he has been worried about losing connections and not being able to access technology solutions easily; with the use of an Amazon Echo device, connected to the broadband in his property, Mr H has been supported by staff and his family to learn how to use 'Alexa', asking her about the weather, the football results, creating an 'Audible' account to be able to listen to audiobooks of any kind and to ask Alexa to call his family for a chat through the 'drop in' function.

Using his Alexa, and discussing with friends, staff and family about all the available skills and apps that can be added to his Amazon Echo smart speaker, he has gained more confidence, keeps his brain active with daily quizzes and can even ask Alexa to add items to his shopping list to send to his son.

His son is proud of Mr H's independence, but he is concerned about his isolation.

Cascade3d Connected Care

Cascade3d has worked on several Connected Care Projects using Amazon Echo Devices. These include working to reduce isolation in rural communities and using the Echo Show device to perform remote triage of patients for the NHS during the pandemic. In the case of Mr H, Connected Care could compliment his existing technology by:

- Having some discreet sensors around Mr H's home to provide daily living information for his family and care staff. To show Mr H's mobility and strengths in relation to his visual impairment, especially when home alone.
- Prompts for medication, food, drink or just simply stretching his legs can be sent to the Echo device to ask 'Alexa' to remind Mr H not to forget any important activities. Overdue reminders can also be sent to care staff and family members including his son to follow up.
- The Cascade3d Connected care dashboard will be prefect for Mr H's son to check on his father's social interactions and daily living activities. Mr H' son can access all this information from his smart phone when he is busy and on the move. Mr H's son can then relax knowing his father is safe and well cared for and even use the app to know when Mr H is in his chair and ready for a call to catch up, on the Echo device.
- Should Mr H ever need to monitor any medical readings (e.g. blood pressure), Cascade3d can supply Bluetooth enabled medical devices to collect the readings and display results on the online dashboard. In a previous project another individual with a visual impairment was assisted by Cascade3d Connected Care. The individual was able to take readings but not see the results on their medical devices, the Cascade3d Connected Care skill employed Alexa to read the individual their medical readings when asked.

Introducing Jim

Jim, 72, enjoys gardening and getting out in the fresh air but his reduced mobility means he can't always get out and about so easily – as a result of this his levels of social engagement have reduced and Jim is keen to not lose touch with friends, but to see how different types of technology can help maintain and grow relationships with other people living in his area and family further afield.

With the aid of a tablet device, connected to the internet via the broadband in the extra care scheme or through a simple wi-fi dongle, Jim can access apps to check the weather before going into the garden area and is now able to follow simple exercise videos that his occupational therapist has added onto the tablet remotely; Jim has learnt how to use video calling to connect with family and friends all over the country, as well as being supported to set up a group within the scheme.

The sheltered housing scheme does have staff on site during the week, but they are a little worried about Jim's risk of having a fall when they aren't around and how the externally commissioned alarm centre would be alerted, particularly because Jim has been known to leave his pendant in the bedroom and is more likely to be unable to get back up rather than having a hard fall to the ground.

While Jim still struggles with his mobility, he is able to maintain friendships and has a better quality of social engagement, both face to face and using the video.

Cascade3d Connected Care

Smart sensors around the house can detect movement and activity levels. This is useful information for all care-givers including OTs and the housing scheme staff.

- The sensors used within the Cascade3d Connected Care system can assist the local occupational therapy team in checking the regularity of Jim's exercise sessions and visits to the garden to show the effectiveness of the home-based therapy.
- The sensors can also be used to check personal care and food preparation activities undertaken before, between and after care visits, evidencing the strength-based approach for the OTs to assess.
- The sensors can also assist the sheltered housing scheme staff, especially when less staff are available such as at weekends or during the night. Any longer than normal periods of inactivity (following a suspected fall) can trigger an alert to be sent to the ARC using the Social Care Alarm Internet Protocol (SCAIP) for instant assistance.
- Jim's family, friends and care-givers will all be able to access the Connected Care system. They will all be able to see the visits from friends and Jim's visits to his garden each day that are clearly important to him. His care and support can then be adjusted should changes be needed to maintain Jim's social interactions and quality of life.

Introducing Mrs V

Mrs V lives on her own within an extra care scheme, she has always been active and was a keen rambler until only a few years ago; the combination of Mrs V's Dementia and sometimes forgetting to take her medication on time and eating and drinking well has led to her having a few falls in her home and she has been found in the local village confused about where she lives – she is still physically able to move freely around the scheme and out in the community but would like some support to make sure she is safe. Her grandchildren introduced her to her iPad one Christmas, and she can now use some apps to call family as they set them all up for her.

Her wishes are to be able to go for a walk and not have to stay in the scheme all the time, she has consented to staff helping her with a GPS device to take out with her, which will raise an alert if Mrs V goes too far away from the scheme or ends up within 200 metres of the river within the village – staff have received training to know how to set the GPS device up and how often to charge it and have agreed with Mrs V and her family.

Mrs V has also consented to having a set of smart sensors in her home, which will passively monitor movement and activity such as using the kettle, opening the fridge, visits to the bathroom as well as providing prompts to take medication and have a drink; the sensors do not watch anything but can identify movement and learn about Mrs V's routine, so that they can notify staff or a relative if something is happening that is outside of the normal daily habit – the system also can detect falls without Mrs V having to remember to wear any alarm.

For Mrs V and her family, it means she can continue to go about her daily routine as normal, knowing she is safe within the technology in the background.

Cascade3d Connected Care

The connected care system is invaluable in supporting individuals like Mrs V to continue to live safely in their own home. The system will learn the daily routines of an individual and notify the best placed source of assistance when things are not quite right.

- Smart sensors and devices can check food and drink are being consumed and medication is being taken on time, in addition to monitoring for regular activity and/or lack of movement around Mrs V's home.
- Door sensors can be deployed in combination with motion sensors to check when Mrs V leaves her home and notify when her return is overdue, or when the visit outside is taken at the wrong time of day. This will be useful information when combined with a GPS device and can also serve as a backup should the GPS device be left at home or run out of battery.
- Just before Mrs V is required to take her regular medication, Cascade3d Connected Care can send reminders to her familiar iPad, these reminders can be backed up with text messages to her family members if a dose is missed. Mrs V can also view the Cascade3d Connected Care timeline on her iPad to view her activities from the day and remind her what she has achieved.
- Cascade3d Connected Care includes unlimited access for extra care staff and family members. By making this system part of family life and involving her grandchildren and their experience with technology, Mrs V will be supported and can continue to live independently at home.