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EXHIBTION TITLE: Technology, Backwards Thinking

During 'Technology, Backwards Thinking' you will explore how the technology that today's postmodern society is glued to and the robot that are going to take over the world, could be the answer to supporting those with poor mental health and a range of disabilities. Today around 19.7% of people 16 or older show signs of anxiety and depression in the UK according to the UK's Mental Health Foundation (2016). This can make it very difficult for these people to socialise with others. For those who have disabilities such as sensitive mutism who can not speak due to the disorder, they rely on software such as 'Go Talk Now' to communicate with those who can speak. At present day we have so much technology that can be used for non-recreational uses which is not being used effectively. Explore, Play, Talk and Think, how much can robotics and technology help those struggling from disabilities and mental health issues?

The main theme covered throughout the exhibition is the development of technological advancements and how they positively affect those with mental health issues and disabilities. This will follow the underlying philosophy of Aristotle, with the main idea of natural and non-natural things come into being based on the state of current affairs in the world (Aristotle, Book II, Chapter one). The purpose of the exhibition is to involving those with the issue we are trying to support as it is believed that there is a connection between the development of such aids as many institutions discuss "developments in the field and the use of these technologies in real-world settings, - so far, taken place through actual collaboration with researchers in engineering, robotics, design, and people with disabilities in order to investigate the actual nature and scope of these suggested relationships" (Leeds University, 2017).

By bringing engineers, developers and people within healthcare and their Patience together would provide a space for them all to discuss the problem at hand and work together to produce the technology needed for the future.

In doing this exhibition I feel it will greatly support those within the healthcare industry as it puts their voice and their patients voice forward helping those with disabilities as well . For this reason, the exhibition is limited to 30 people per group with time slots for entering the exhibition. In speaking to healthcare professionals there is a very strong belief that the way in which they do medicines and treatments needs to change for a smarter workflow. Hedley Reese of Pharma Flow aims to "give patients and the health care professionals a voice by adopting new and inventive ways of working (2019).

The exhibition will include 5 pieces from four different companies, This will include a range of different types of technology from physical to digital such as assistive technology for support and humanoid robots. Some of these include Pepper and Nao from Softbank, two humanoid robots that have the ability to maintain a full natural conversation with a person and autonomous thinking to add a human-like feel to it's actions. As well as Miro-E from consequential robotics which is a non-descript animal that can be used in areas where animals are not allowed such as hospitals., which can be used to increase morale and boost positive thinking.

In terms of assistive technology, one of the companies exhibited will be the attainment companies 'go talk now', this software is used with people with Sensitive Mutism and Non-verbal Autism so that they can communicate with others and continue to lead a socially normal life. This is an app for Apple products which gives a person a selection of tiles with commands which can be added by a parent or Guardian depending on a person's needs. The final company in the exhibition will be Sonocent bringing their audio note taker software by the same name . "Many students with disabilities have difficulty listening and writing at the same time, the multitasking skill needed for successful notetaking." (Newton, Deborah A , 2011, Journal of Special Education Technology, VOL 26(2), pg.57). The software can be used within lectures to record, then later played back with the slides to make notes.

Exhibit 1: Pepper



On the left as a person enters and follows the markings around the exhibition, I plan to place Pepper on the Softbank booth. Pepper is a humanoid robot developed by Softbank which has natural fluid human like speech. Pepper can be used for a multitude of uses inside and outside of mental health and disability support. One of Pepper's uses is as an appointment robot which will also be used so that guests can sign in.

During the exhibition, there will also be demonstrations on how Pepper can be used within the homes of vulnerable and elderly people to support them with loneliness as well as supporting those with dementia reminding them to take tablets, of lunch dates with family as well as other events.

The humanoid robot has been sent Into the homes of elderly people to reduce loneliness by having a conversation with them so that they feel like they always have somebody with them. one of Pepper's main features is emotion detection this can be used with people with depression so that doctors and other healthcare professionals can monitor a persons wellbeing and emotional health during therapy. In cases of people who have Dementia, Pepper can be used similar to an AI assistant such as Amazons Alexa and can support the person with day to day tasks such as cooking recipes, alarms as well as general knowledge AI tasks such as weather.

Exhibit 2: NAO



Next to Pepper on the Softbank booth will be NAO another humanoid robot by Softbank with very similar capabilities to Pepper with a slightly softer feel more closely aimed towards children. NAO can do most of the capabilities of Pepper without the screen functionality and compatibility with devices such as Google Home. Although NAO does not have this functionality its purpose is more for the human-like speech patterns, like Pepper it performs similar task, talking to those with mental health issues so that they have their own little companion. NAO also has a mode where a person can walk with NAO by holding its hands which adds an element of interactivity for a child or young person this can make them feel like they are a friend of the NAO robot

Both pepper and NAO would be put next to each other as they are able to communicate with each other demonstrating how the robots can connect. This means that if two disabled people were to meet up their robots could also communicate with each other.

Exhibit 3: Miro-E



Miro-E from consequential robotics is a non-descript animal that can be used in areas where animals are not allowed such as hospitals. The animal has lots of sensors which can mimic the activities of dogs and other household animals, it has great benefit in improving mental health not only in the home but in workplaces such as offices to increase positive thinking.

Studies show that there is “a decrease in depression over the course of 2 years in elderly residents of a nursing home with a resident dog,” (Robinson et al, 1996) and Banks and Banks found that “patients in long-term care facilities that animal visitation programs reduced feelings of loneliness.”(2002, 2005)

The animal can react to its surroundings, one of the sensors in the top its head acts like stroking it, at which point the animal will wag its tail to express feelings of happiness. On the other hand when it hears negative phrases it will become unhappy lower it's head and begin to mope. As Nobody wants to see an animal upset a person with poor self-esteem Will instinctively improve their self-esteem as it will positively impact the animal and vice versa

Exhibit 4: Go Talk Now



The final exhibition in the main room will be Go Talk Now. The app was developed to allow people with sensitive mutism and nonverbal autism to communicate with people with verbal abilities to allow them to communicate effectively. “Correa and colleagues investigated the effects of a functional communication training intervention on the challenging behaviors of two children with autism spectrum disorder. Children who had a history of challenging behavior were taught to request preferred stimuli through the GoTalk Now application. (2019, Journal of Special Education Technology, 34(2), pg. 71-79.) The app presents a person with a selection of tiles which when pressed give out a verbal command using the devices inbuilt AI system, These tiles include 'I want' , 'I want to go and 'I want to see' with corresponding items. The device is fully customizable by a Parent or Guardian to add more specific tiles depending on a person's needs.

Exhibit 5: Sonocent



Sonocent

The final exhibit Sonocent will be placed in the concave section at the back of the Gallery with screens so visitors can see the software clearly. Sonocent is an audio notetaker that paired with the lecture slides can be used to record a lecture tracking when a teacher said something during a presentation so replay is possible to make notes that are linked with the presentation at the time they were written so that student can see what a note is referring to. The software is able to remove background noise to get clear audio, which can be helpful for those who struggled to concentrate in slightly noisier environments.

Exhibition Map



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Exhibits

- Exhibit 1 - Pepper - <https://www.softbankrobotics.com/emea/en/pepper>
- Exhibit 2 – NAO - <https://www.softbankrobotics.com/emea/en/nao>
- Exhibit 3 – Miro E - <https://www.miro-e.com>
- Exhibit 4 – Go Talk Now - <https://www.isetcec.org/practice-portal/go-talk-now-app/>
- Exhibit 5 – Sonocent - <https://sonocent.com>.