**BSc Internet Design Final Year Project**

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# **Introduction**

Introduction (general overview of this project, hypothesis or questions that were created at the beginning of the project – Why is this work important? What are you trying to achieve? Aims and objectives).

For my final year project, I wanted to combine my skills from the past 3 years into a project within the realm of the internet of things. I want to merge the use of IOT with topics I found the most interesting throughout my studies in a bid to develop a project that can make a difference in our everyday lives. These include digital art/installations, open data and environmental sensing.

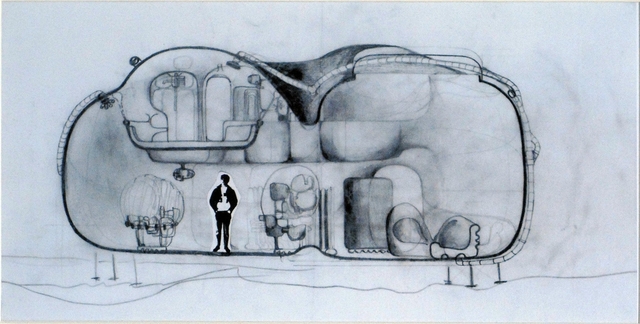
The aim of my project is to build a resource measurement system for water consumption within the household, this would be accompanied by a live data visual art piece representative of how much water is consumed daily by the home occupants. This system would then help to highlight how wasteful we can be with the resources in our own homes and drive home the impact that this has on the rapidly depleting environment, and therefore help people to make the conscious effort to waste less and reduce the consumption of important resources allowing for a healthier environment and more resources for everyone in the future. This project could also be taken further on to other levels including industrial settings or emergency settings, I would also like the art piece to be able to stand out on its own regardless of the system for positioning in a gallery or other similar settings. Currently there are very few devices covering this particular task and those which are, do not release that data for people to see nor do they represent the data in an artistic way, I am curious to see if the art could be used to make a change in how people behave. I believe it’s important that people are made more aware of their impact on the future of the world and themselves through the resources which they consume.

# **Background**

Background (all related references that have inspired this work, or any philosophical, theoretical, or practical context that this development is based on.).

How the internet of things can help resource management and reduce waste with the home.

First off, exploring what iot is/could be and the bigger meaning behind “smart homes” which led me to the idea.

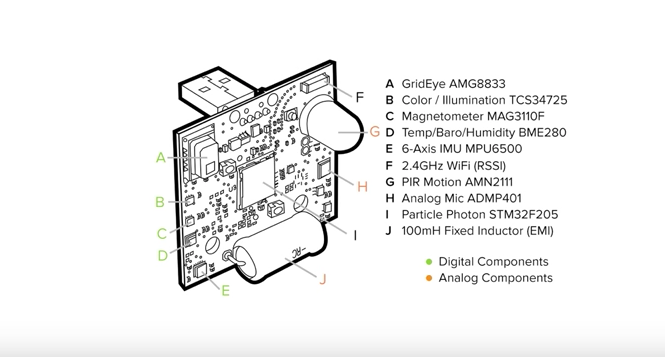


Living Pod (Greene, 1966)

The idea for this project came from a compound of different references, one of the most influential being a short sci-fi story written by J. G. Ballard called One thousand Dreams of Stellavista. This is a story set in a house he describes as psychotropic. The word psychrotropic is usually used to describe the effects of mental activity, behaviour or perception in conjunction with drugs and medicine. In the case of One thousand Dreams of Stellavista is it describing how the house is designed to sense and mirror the psychologic state of their occupants and change aspects such as shape and layout accordingly, and as such are often described as being alive and consious throughout the story. In one part of the story the main character is confronted by his wife and asked to move back into a normal static house to which he objects and responds with a description of normal houses being “it's not just dull, it’s dead” (Ballard, 1992). I found this story interesting and inspiring because homes are generally a personal space that is often molded and formed to the liking of the occupant or owner, people often change its apperance by remodelling or building new sections and using decorations to make homes unique and an expression of themselves, and the story provides it with a mind of its own and in control of its self. This story is also very relevent today and fits in nicely with the increase in the amount of internet of things devices built for the home to make everything in life easier and more adaptable. It got me to think of what else could be made psychotropic and to feel alive within the home space and how could this be used, what else could the house be more aware of and mirror with the help of the IOT and how could this be used to make a difference?

Another very influential piece for my project was the idea of the Umwelt. It is a German word for environment and also a concept introduced by German biologist Jakob von Uexküll in 1909. The Umwelt is a concept used to describe the fact that within the same ecosystem, different species are biologically programmed with sensors to detect a fraction of the possible signals or data that is out there, forming the limit of their entire objective reality of which they cannot see past, potentially missing so much more of the world around them. It is often translated as a self-centred world and Uexküll’s also describes it as “a soap bubble around each creature to represent its own world, filled with the perceptions which it alone knows” (Schiller, Kuenen and Uexküll, 1957). This led me to an interesting speech from a neuroscientist called David M. Eagleman whos work is based around the umwelt. In his speech he shows a device that him and his team built to help deaf people to hear again by wearing a vest and using an app that turns sound into vibrations that after training can be percieved by the body as sound, he calls his work “sensory substitution” and “sesory extensions”(Eagleman, 2015). But he also briefly talks about the possibilites of extending our Umwelts by making plug and play sensory periphirals and what kinds of data this would allow us to pick up on and work with. I found that this tied in nicely with the theme of homes and IOT as well as it being really interesting and wanted to find a way of using my project to potentially increase our umwelts in some way and how this might change our lives.

Through my research into IOT I found an up and coming google funded project named Synthetic Sensors by Geirad Laput. A project that aims to create a new type of sensor that can work across a broad range of appliances and visualise it, on the project website it is described as “a single, highly capable sensor can indirectly monitor a large context, without direct instrumentation of objects. Further, through what we call Synthetic Sensors, we can virtualize raw sensor data into actionable feeds” (Laput, 2018). This sensor is taking a big step forward in terms of IOT and I found its potential and diversity for envirnmental sensing very inspring for my project. I wanted to try and get hold of one for my project but they are currently only in the prototype stage.



Super Sensor, (Laput, 2017). Super Sensor Schematic (Geirad Laput, 2017).

# **Methodology**

Methodology (the development practice and structure that was followed to make this project. Any specific techniques or technologies used should be mentioned here).

Idea background research

Other inspirational projects

# **References**

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