



# **Electromagnetic Hypersensitivity:** *Trapped By Technology*

*Insights report by Kenneth Rees*



## Introduction



Humans are social beings. Humans have reached a point in time in which technology has allowed them to message and speak with everyone else in the world. Technology has been integrated into every part of our lifestyles to the point where most homes have a personal assistant AI such as an Amazon Alexa controlling different aspects of their life through automated lights, heating and music to name a few. If you were to show someone from a century ago the advancements of today's society, they would consider it as magic, as Arthur C. Clarke (1962) states; "Any sufficiently advanced technology is indistinguishable from magic". Technology has become humanised with wearable technology being normalised and to some a necessity. The digitalisation of media and now, the movement toward the digitalisation of currency, everyday life will become dependent on technology to make life easier for everyone.

However, what does it mean if you cannot live in today's tech orientated society? Technology has socially united us as a society but amongst these advancements are many negative impacts, some of which people are unaware of. Electromagnetic Hypersensitivity (EHS) is a new medical condition which arose with the surge of new technologies. EHS physically harms people who suffer from it, indeed, "people with EHS tended to suffer from exhaustion, anxiety, back/join/muscle disorders, depression and migraines" (Gruber, 2018). Depending on the severity of the person's condition, they are physically incapable of using electronic products which emit electromagnetic radiation. Because of the strange nature of the condition people often disregard it, claiming it as make believe. Furthermore, EHS is only a registered medical condition in some parts of world;

"EHS has no clear diagnostic criteria and there is no scientific basis to link EHS symptoms to EMF exposure. Further, EHS is not a medical diagnosis, nor is it clear that it represents a single medical problem."  
World Health Organization. (Electromagnetic fields and public health, 2005).

Symptoms suffered from EHS have effected people to the extent in which they have been forced to move from their own homes from places such as large cities where telephone masts, 4G signals and mobile usage are constant, to far more rural areas such as mid Wales where technological revolutions have not quite reached in masses. People have become homeless because they physically cannot live in the normal environment anyone. It carries great mental health issues with people unable to go to their own place of work and be a member of society which has led to them taking their own lives. With the recent decision to place the new 5G towers all over the UK there has been a stir in the EHS community for not just their well-being, but for others who may begin suffering from it.

This project, I will research into the research question:

**How might design thinking be used to educate people about Electromagnetic Hypersensitivity and prevent them from suffering from the condition themselves?**







## Introduction

Two years ago, the author of this report was one of the people who did not believe the condition existed until a family friend had to move to his farm in mid-Wales to improve his condition. He used to live in the city of Birmingham when it began to affect him. He began experiencing strong headaches and was bedridden for weeks with doctors not knowing what was wrong with him. Eventually, discovering he had EHS, Luke had to move from his own home in Birmingham and begin living with no technology in a hut. He has lived in almost complete isolation for over two years. Having a family friend feel the effects of EHS, it was decided to attempt to aid his cause and turn the final major project into a passion project. Unfortunately, along with EHS he also suffered with Multiple Chemical Sensitivity (MCS) in which his body was also extremely sensitive to chemicals such as perfumes. These two conditions combined made it extremely difficult for him to leave his area of being. He would often send us letters in means of contacting not only us but the outside world, for example,

“Dear Knight and fair maiden. Please could someone when they’ve the time and it’s dry come down and chat, I just need to see a person; now and then. I’m freaking out about all this?” (L.D, 2019)

His letters gave the family a lot of insight into his mental struggle as he battled with his condition. EHS sufferers need design to create ways of continuing their day to day lives. Design could be used to create systems which allow people with EHS to reintegrate their way back into society, establishing their social lives again without relying on electronics to communicate with friends and family. For this report, focus will be placed into research on Electromagnetic Hypersensitivity as trying to tackle both EHS and Multiple Chemical Sensitivity would prove a significantly more difficult task. One issue needs to be solved before the other.

People with EHS have been compared to Canaries, birds which were used in mine shafts to detect harmful gases. Both EHS sufferers and Canaries can sense harmful things that cannot be seen.



## Aims



- Speak with and interview doctors who deal with EHS, people who suffer from EHS and families affected by the condition.
- Carry out observation research alongside empathy tests to get an understanding of what it is like to live alone without technology both physically and mentally.
- Review online reports and literature about EHS.



## Objectives



- Develop a greater understanding of Electromagnetic Hypersensitivity surrounding what causes symptoms.
- Research into what products people use and the measures they have take to prevent the symptoms of EHS effecting their day to day lives.
- Investigate into how people used to live without electronic technology and how people live in today's society off the grid.









# Methodologies



## **Interviews – Primary Research**

There are a number of interviews online with people who suffer with EHS displaying their struggle and how they manage with their day to day lives. The interviews viewed so far were from people who only suffer with EHS to a certain extent. If a design is going to be created which brings a solution for all EHS sufferers an interview will need to be conducted with someone who has a high sensitivity to electromagnetic fields and can use little to no technology. If an understanding of what it's like to suffer with the worst-case scenario of EHS is obtained it will allow the author to design for everyone who suffers from it. As the person living at the author's farm has a very severe case of EHS, he will be able to interview him and understand what he's going through. Through the interview, other people will be recommended from him to get in contact with, for example, Doctors and professionals that have been aiding him through his condition.

## **Ethnography Research - Primary Research**

Through ethnographic studies, an understanding of what the EHS sufferer living on the author's farm will be collected on a daily basis. Respecting his privacy, ethnographic research will only commence when he's outside of his cabin. With an extensive amount of free time and very little to no contact with friends and family it would be invaluable to see what he gets up to. He can't simply entertain himself with television or videogames as he cannot go near electronics. A view into how someone with EHS spends their free time can be reviewed and potentially how they generate income for themselves without going to a place of work.

## **Ideo's Design thinking approach Empathy Test - Primary Research**

To grasp how it feels to be a sufferer with EHS, an empathy test will be conducted which will allow an understanding of how people with EHS manage with their day to day lives. The author shall spend an entire day without technology of any kind, reverting back to times before the industrial revolution. A number of activities will be set out to complete over the day such as cooking, gathering water and starting a fire. The scenario shall emulate how EHS sufferers manage with simple activities allowing a better perception of the problems they face in their way of life that could not be understood from an observational point of view.

## **Surveys - Primary**

A simple research method which will only be used a few times. Surveys will only be used to get the public's view on the topic. So far it is understood that EHS is genuinely unknown to the public. This method will only be used to confirm or deny the public's opinions and thoughts on the matter.

## **Literature – Secondary Research**

Through the other research methodologies used, reading literature such as magazines, leaflets and books will be recommended from various sources. Interviews will be conducted with individuals who have a firm grasp of what they're being interviewed about. Through them, the correct reading materials both online and off will be recommended to gather a further knowledge on the topic. Whilst the interviews are conducted, the correct reading material will naturally be recommended and researched to aid in the progression of the report. Having the correct reading materials recommended means the author will not research pointless articles and be led to dead ends. Research will progress organically.







## Empathy Test Findings

From the 11am start it was clear it was going to be a long day. A number of research articles surround EHS were brought down to study whilst at the campsite along with a couple books. At first, it was thought enough reading material had been brought for the day, yet, by 1pm all the materials had been read through. When there are no distractions a lot of work can get finished. Throughout the day the author noticed himself reaching for his pocket to look at his phone then realising it wasn't there. The habit of constantly looking at your phone stays with you. Without a clock, perception of time became warped making it difficult to tell the time. The only source of time was the sun in the sky. Over the course of the day one of the brothers living at the local farm came and visited, when asked what the time was, he had made it aware that time was going a lot slower than anticipated. At 2pm the author had thought it was 4:30pm. Time was going far slower as there wasn't much to do. It was evident that the overwhelming presence of loneliness was lingering even with the sporadic visits from outside the camp. Deep empathy was felt for EHS sufferers, it seemed as if society was moving forward whilst stuck in place and everyone else progressed. With no distractions at the camp, the author was able to read an entire book in just a day.

The book read was I am Legend. Richard Matheson (1954) it offered another look into isolation in a dystopian version of earth where the last surviving man on earth must fight off against hordes of blood sucking vampires. The whole experience would have been far better if music had been present. This led the report to take a different path into researching record vinyl players. Would old grammer phones effect someone suffering with EHS as they do not use electricity but instead are wind up. As the time approach around 6 o'clock, the search for wood commenced to keep the fire going. The fire was the only source of both light and heat which was a necessity. The cabin walls had been covered with reflective tin foil in an attempt to retain as much heat and light as possible. The light emitted from the fire was fairly weak so reading books was a struggle. It was at this point it was decided to attempt to sleep as there was nothing left to do. Insomnia now began to take hold. The brook that flowed passed by the cabin was now incredibly louder than remembered, alongside this, owls and other creatures could be heard which hadn't been noticed. With day to day technology, people would usually be up until around 1am looking though streaming services and video games far later than necessary. As it went dark at 6pm there was no over alternative but to go to bed. For some, this would been around 6 hours earlier than usual. Overall, a great sense of boredom foreshadowed the whole day, with a lack of engaging tasks to immerse in, people with EHS must not know how to spend their time.









## Interview Findings

Now understanding how it felt to live without technology, a grasp of why people isolate themselves to this extent was required. Fortunately, a lecturer at Cardiff University, Bex Scott, was able to offer a deep understanding of EHS as she had studied the topic herself as a business administrator whilst doing her PHD in UNSW, Sydney. She is currently travelling abroad so unfortunately it was difficult to communicate due to different time zones so to tackle this, emails were sent which she was able to respond to in her own time. She had a vast amount of knowledge on the topic and was eager to share her findings with someone else who was also passionate about it. She knew too well the struggle people with EHS deal with and wanted to help in anyway. She was asked a few key questions. It was important to know if EHS was a temporary condition or if people were able to recover from it, this would influence the final outcome. Bex stated that;

“I have interviewed 32 people and only 2 have got better – meaning they have made it liveable – these two people have lots of money and have managed to get expensive treatments (NATE) and have shielded their homes. So, no I haven’t seen a genuine full recover. Money just gives you more options”. (Bex Scott, 2020)

Unfortunately for sufferers of EHS it seems there is no finite solution, only precautions they can take to prevent and near enough, completely stop symptoms of EHS depending on the severity of the condition. Considering the health risks from EHS, why was it only registered as a medical condition in parts of the world such as Sweden? Bex claimed that:

“In France the press has done their job and the public are pretty aware of what EHS is and tend to be respectful of it. For example, in French kinder gardens Wi-Fi is not allowed because they know how damaging it is to children. Same kind of story in Sweden where the government support sufferers in keep and adapting their jobs. It is not well known in the UK or the US because it is not in the interest of the media to publicize it – the media get their funding from telco, energy and tech firms – it is in their interest that the public believe their devices are safe.” (Bex Scott, 2020)

The truth about EHS is being hidden from the public by industries due to the income they produce. An article in the EMR and Health magazine read “studies funded by industry are more likely to report no effects; studies not funded by industry are more likely to report effects” Electromagnetic Hypersensitivity. New research database. P7. This further solidified why EHS is not well known in places such as the UK. Similar situations have happened where the industry has hidden the truth from the public, for example, cigarettes. It is reported that “the industry attempted to convince the public that smoking did not harm you. Despite the deaths and clear links to cancer, they still largely maintain the case that these links are unproven” World Health Organization. Tobacco Explained. P5. Due to the industry’s financial influence, the health impacts from electromagnetic radiation have been dismissed and barely heard of in places such as the UK. In Lyn Mclean’s book ‘Wireless-Wise Families’ she stated that:

“In several countries, courts have made determinations recognising that exposure to wireless radiation could be a health risk, even though those exposures complied with relevant standards” Lyn McLean (2017). Wireless-Wise Families. Australia: Scribe UK. 12.



## Interview Findings



Based on this discovery, a survey was conducted to discover how many people actually knew about EHS. The survey was sent out to 289 different people from different age groups. From 289 people, only 25% (72 people) knew about EHS whilst 75% (217 people) had never heard about it. This made it evident that EHS was exceptionally unknown in the UK, assisting Bex Scott's findings in that it is not in the interest of the media to publicise it. To prevent people contracting EHS in the first place, a clear understanding of how people become hypersensitive to begin with was needed, however, how people become hypersensitive seems to be unclear. Most people with EHS all became hypersensitive in different ways. "We haven't got an answer for this" Bex said. She stated that: "There are theories that have come from the interviews. Such as, high exposure as a child, such as a big electric shock, or exposure to radars which were tested by the Navy as a child is another illustration. The idea is that the hit of electromagnetic radiation at a young age made their bodies less able to cope with higher levels of exposure". (Bex Scott, 2020)

With only vague answers to why people begin suffering from EHS it would be difficult to prevent it in the first place. There are measures which can hypothetically prevent EHS but no confirmed definite way. Published books such as Lyn Mclean's 'Wireless-Wise Families' (2017) layout a series of actions you can take to prevent harmful electromagnetic radiation effect your children but state no definitive way of a person becoming hypersensitive. This leads me to think that helping people with EHS directly would be a far better approach to this project rather than just making people aware of EHS.

It was decided that speaking to sufferers of EHS directly would give a greater understanding of the topic. An interview was conducted with the sufferer who was living at the author's family farm. He wished to stay anonymous for privacy reasons. During the interview, he was rather wary, staying a good distance away. Due to the fact he also suffered from multiple chemical sensitivity, he couldn't come close even though precautions were made to not wear chemicals such as aftershave. However, the washing powder used on the authors clothing triggered his sensitivity. He spoke in a very monotone voice as if he were rundown and tired. He gave further insight into the mental struggle that came with isolation and EHS. He claimed that: "I just try to take every day as it comes, I find myself incredibly bored not knowing what is happening in the outside world apart from what I read in the newspaper. One of the worst parts for me is being unable to listen to music, I need to find a way to reintroduce it into my life".

EHS has stripped him back to the dark ages before the industrial revolution. He desperately needed engagement with some form of entertainment or hobby. He had asked many questions surrounding movies and video game releases, wondering what cinema was like these days. His main interest was in sequels to entertainment he had enjoyed before EHS had affected his life.

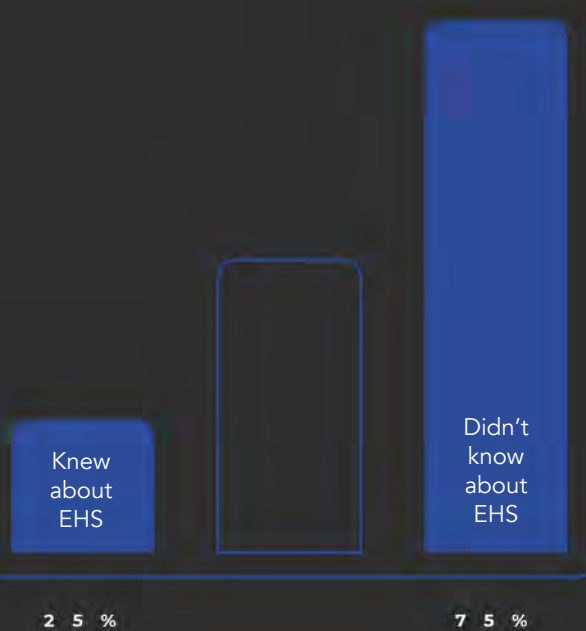
"It's so easy for people to just go online and search something. Here, if I need an answer or a problem solved, I have to request it in a letter or ask someone when they visit me which can take days. Life moves far slower without access to the internet". (Anonymous, 2020)

The term 'Google it' has become synonymous with day to day life. All our answers are in our pocket. We take current technologies for granted, it is far too simple for us to ask the AI in our smart phones a question and be given an instant answer to anything in the world. The internet is an infinite mass of information which keeps on growing.





# S I G N A L



S E A R C H I N G . . .



## Interview Findings



To get a perspective on how people lived in times before the introduction of electronics and smart phones, an interview was conducted with Colin Jones. A farmer living at Church House farm in mid Wales who has an extensive knowledge of how his parents and grandparents made a living and survived in a world where televisions did not exist. Colin made it clear that “in the past people were very hard working, they didn’t need much entertainment. They didn’t have access to games and television, so they didn’t know what they were missing” (Colin Jones, 2020) Colin has kept a lot of the attitudes from his family as he had now taken over the farm for himself. He stated that “people would have to work hard otherwise they would probably not survive the winters”. Farmers and everyday people would have to generate their own food supplies to last them over the winter months. No food was wasted. All the vegetation, meats and other food was pickled, salted and sorted in glass containers to preserve them for as long as possible. It was a far healthier lifestyle than today; people take for granted how easy it is to pick up food from across the road at a supermarket. Colin stated that;

“There was no refrigeration to speak of, so, to keep their produce cool, they would store food in cold cellars below their homes which naturally were always cool”. Here, cream could be stored for a lengthy amount of time before turning it into butter. People were Self-sufficient, if a family lacked a specific resource, they would barter with other families in trade. “For example, if a family who farmed bees were low on meats, they would trade honey for mutton from other farmers”. (Colin Jones, 2020)

A strong community would have been forged in which families rely on one another. Without mobile phones to stay in contact, people’s main source of connection came from social gatherings at the local church on a Sunday. Although this still would have been a religious affair, many people would attend church for the social aspect. “Here people would find out the news and gossip for the week while connecting with friends and families”. (Colin Jones, 2020) Even without electronic technology, people still needed to be social. People always found a way to connect with others. Another social gathering of sorts would have been at the marketplace once a week. People would travel into town on horseback to sell items at the market. This is where their income came from. The income would mainly have been used to pay labourers who worked for them. They did not need to buy much as they were self-sufficient.







## Ethnography Findings

Being able to study an EHS sufferer living at the author's own family farm over a two-year period enabled a view into almost every part of his lifestyle. To compile the two years of study, a summary of his daily life activities will be given during each of the four seasons. Over his time at the farm, there was one constant that he did every day. In his field there was a chair which overlooked a main road a few miles away. From here, he could view the busy road which passed through the small town of Rhayader, the town in the middle of Wales. This was one of his only gateways into viewing society. He could see the world moving past him while he stood still. He would spend a lot of his time just sat there without books, simply watching. Without electronics of any kinds, he was unable to watch movies or listen to music due to the severity of his condition.

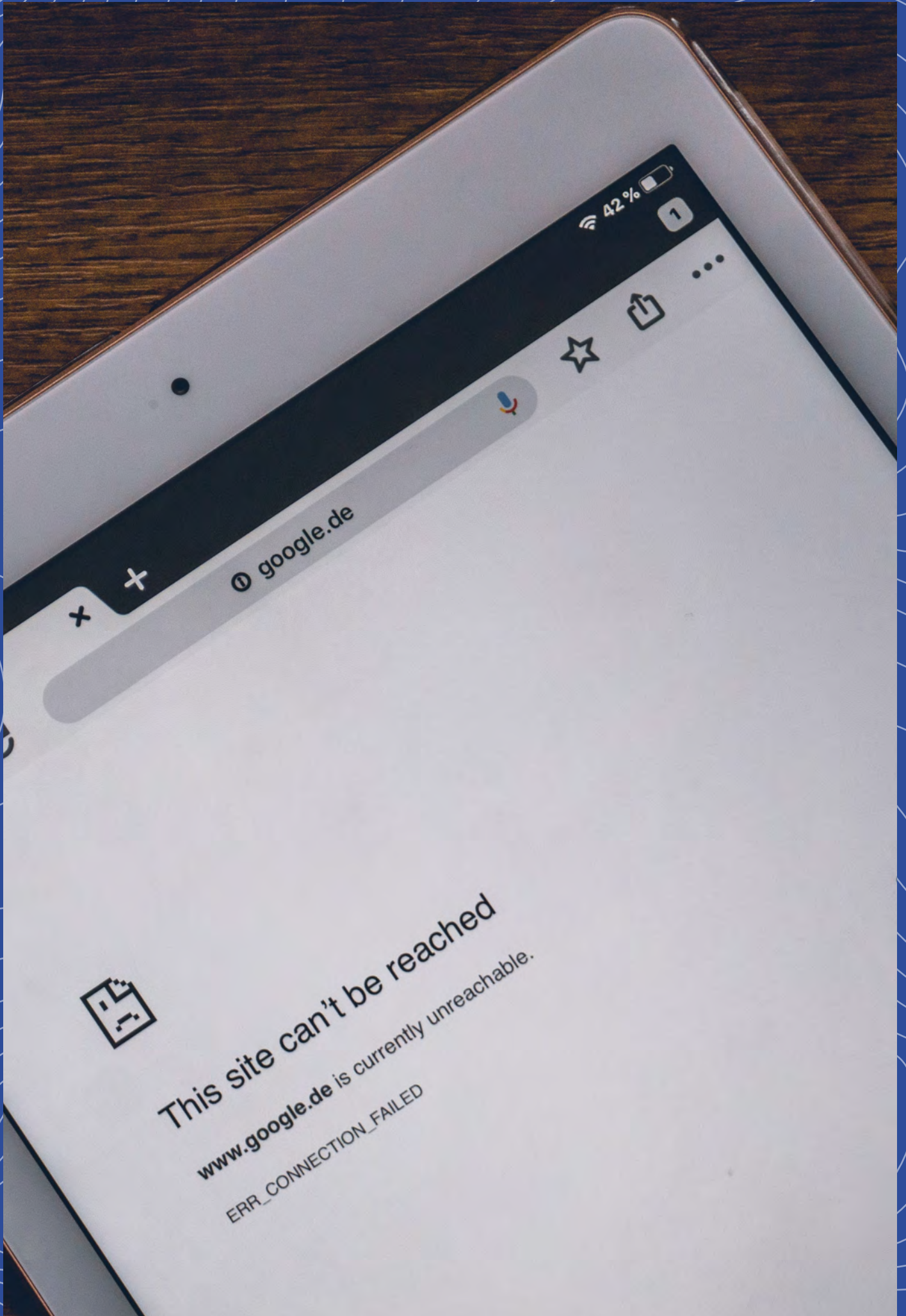
The only way he had access to music was when people drove past with their speakers on full volume. Now and then he would post song requests to the house and every time someone drove past; they would play it to him. In an attempt to help him reconnect with music, with his consent, a test was conducted with an old wind up gramophone which was found in the attic. It did not require any electrical input. Testing this, the gramophone was taken to him and played a safe distance away. His EHS did not react. He came close to it and actually began winding the gramophone himself. A device had been found which he could safely use to listen to music and did not produce an electromagnetic field. Unable to go food shopping himself, he would give a shopping list to his family which would send a Tesco delivery to the farmhouse. From here, the shopping would be carried to his camp site to avoid any interaction with electromagnetic radiation. Upon delivering the food, people were not allowed to carry any electronic devices there with them, this included mobile phones, wearable tech, etc.

When he received his food items for the week along with ice blocks which were used to keep his food cool, this would be the main social interaction he had for the day. It was incredibly lonely for him. Humans are social animals and need interaction, without it we can become very depressed. Depending on the time of year, he would grow his own vegetation in the field, using waste compost to help it flourish. Having to collect water for himself had proven to be a difficult task too. He would need to travel a couple miles to fill up his water tanks located at the top of a hill. It would have been easier for him to come to the house to refill but due to the electromagnetic field surrounding the house, he could not go anywhere near it. He also looked after his own poultry; he bought some chickens from the local farmer which granted him access to eggs daily. This made life far easier for him as he did not have to outsource them and wait a week for them to be delivered to him. Unfortunately, he was unable to work with his condition. This meant that his mother had to purchase all his living costs.

He was dependant on his family for income which lead to a lot of strain on the parents. His family had to travel a considerable distance from Birmingham to come visit him and could only come a few times a month. None of his previous friends had come to visit him. He had his own cabin he could live in, but due to him also suffering from chemical hypersensitivity, he was unable to stay in it for long periods of time without a gas mask. As the cabin was made new for him, the pine wood used produced a strong smell which triggered his symptoms to appear. With Autumn on its way and Wales being a harsh, wet climate, he was forced to use the cabin for warmth and shelter. He had set up a separate tent alongside the cabin. One which held his items keeping them dry, and the other for sleeping in. This way he was able to sleep comfortably and dry without use of his mask.









## Conclusion



From the evidence compiled, it is clear that there were far more issues surrounding EHS than initially thought. At the beginning of the report it was thought that making people aware of the issue would have helped people with Electromagnetic Hypersensitivity, however, it is now clear that making people aware would not solve any issues. EHS would be made known of but would not help sufferers in many ways at all. A lot of people with EHS would not even see an outcome shared online due to some of them being unable to use electronic devices. The project needs to produce a final outcome which benefits and aids people with EHS rather than just pointing them out. This is why the research question has now changed to:

**Electromagnetic Hypersensitivity:  
How design thinking might improve the quality of life of its sufferers?**

From this main question, a series of problems that could be solved branch off of it. The research gathered presents a series of issues which could be solved through graphic communication. For instance, the question could be: How might we use graphic communication to reconnect people who suffer with Electromagnetic hypersensitivity with the rest of the world without technology which emits electromagnetic radiation? A system could be created which did not require technology of any kind. A number of people with EHS could create a community and help each other. Another topic tackled under this research question could be reconnecting and helping EHS sufferers form relationships again. Viewing an interview with an EHS sufferer, the interviewee claimed that “every aspect of my social life like relationships has been destroyed by this, what women wants to go out with a guy that can’t go anywhere? She might as well go out with someone who’s a prisoner” The Feed. (2015) Not only romantic relationships but friend relationships too. Through design, day to day life for EHS sufferers could be drastically improved to reintegrate these people back into society. Issues such as isolation, loneliness, gathering food, etc. can be solved through systems which do not require technology which emit electromagnetic radiation. From the interviews conducted, it is obvious that looking to the past may contain the answers for the future. Looking at life before electronic technology. Solutions created from graphic communication gives people with electromagnetic hypersensitivity hope.



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Figure 1. – The Author conducting an empathy test to discover what it means to suffer with electromagnetic hypersensitivity

Figure 2. – Mechanical wind up Gramophone

Figure 3. – Anonymous EHS Sufferer living on a farm

Figure 4. – Farming Colin Jones out gathering his flock with his sheepdogs

Figure 5. – Mechanical Windup Gramophone

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Unless stated, all artwork has been created by the author (Kenneth Rees)

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