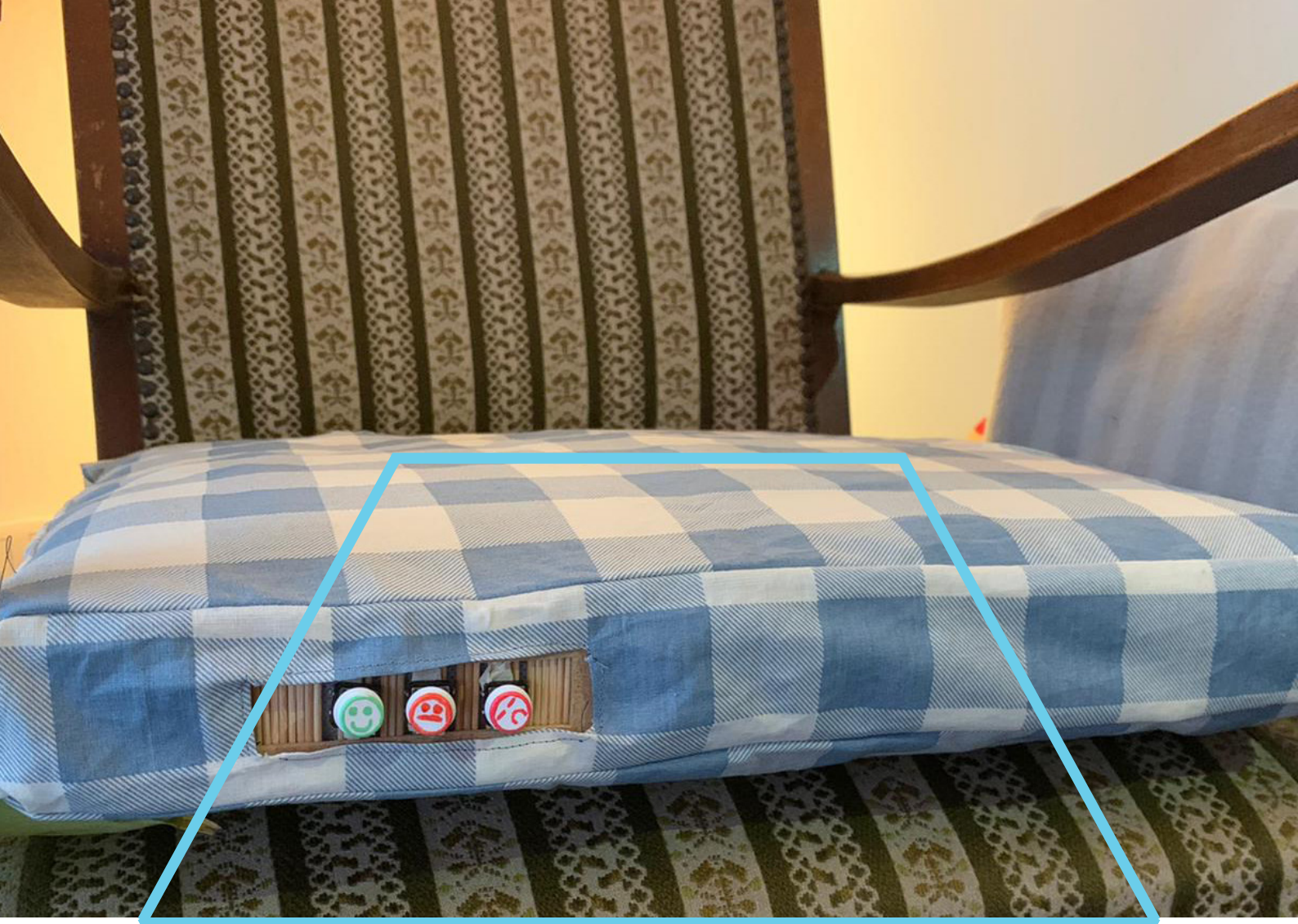


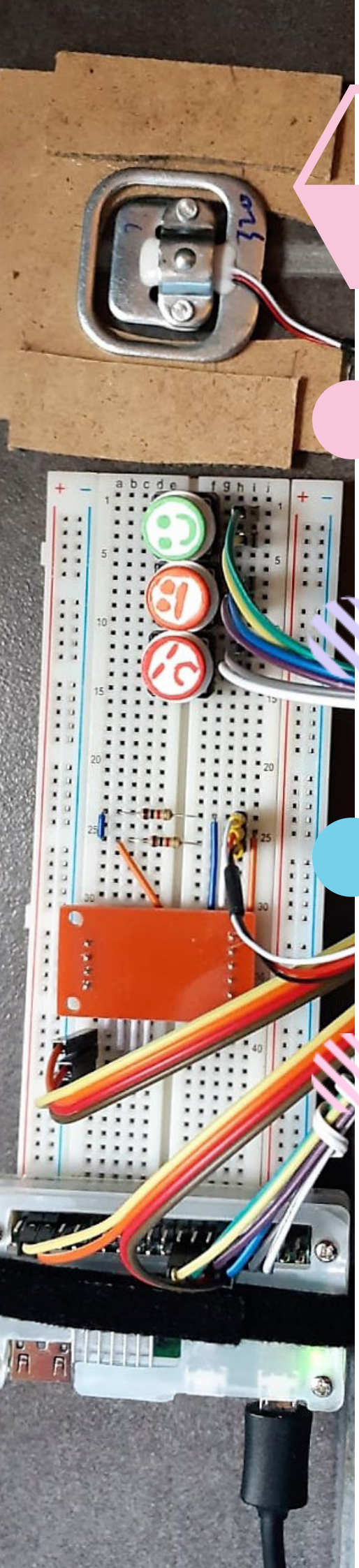
MOTI

Final Report

Concept vs. Reality

Team 8

Anna Leeman – 1435647
Nevena Gineva – 1452355
Lisanne de Jonge – 1408488



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moti | concept vs. reality | team 8

The usergroup

Our product is intended for people from the age of 65 and up - *elderly*. The problem here is that elderly are a wide target group. Therefore splitting the group would help to identify better the characteristics and the assumptions that our team made about it. The elderly who will most likely start using our product will be *pensioners*. They can be split into 2 groups:

Group 1

Refers to people around the age of 65 - 67. That's an important period in which people retire and thus usually is a considerable change in their daily lifestyle. We believe that our product could be really beneficial for them at this stage of life since they suddenly have almost no activities and engagements.

The people that just retired are *used to an active lifestyle*. Furthermore, it could be the case that most of their *social contacts were mainly in their work environment*. After some time they could *start feeling lonely* and *missing to be engaged in a routine*. This might lead them to try our system by themselves. They would like to be offered some group activities, events to meet new people, which can eventually lead to new hobbies and friends. Our team came up with some assumptions for this target group to set the requirements, which they expect us to fulfill.

Their requirements:

- More advanced and various suggestions like events/activities within their scope of interests, as well as offering them something new
- Our product should not be annoying. Especially the motivational speech messages and in terms of messing up their agendas
- High technical quality.

Group 2

Consists of elderly who are already used to their *unhealthy lifestyle* with *harmful habits like sitting for too long*. Some cases show that there is a great deal of elderly *who even do nothing most of the time*. Those people do not realize it, but after regularly sitting for more than two hours they slowly start to worsen their muscle mass, develop elevated blood pressure and more diseases.

They miss their own motivation to do exercises and thus need constant motivation and reminders to undertake simple activities such as getting a cup of water. Our team assumes their family/relatives will suggest for them to try out our product in order to help and encourage them not to keep their stagnated lifestyle. To offer them the best possible experience Moti can bring, according to this research elderly are getting easily angry, therefore, the team came up with some potential requirements that they might have [2].

Their requirements:

- There should be some small persuasiveness to the degree that they do not get annoyed.
- The pillow will need to start with small tasks, which preferably also lay within the interest of the person. They need to feel rewarded after doing a task to keep them to follow the pillows advice.

Our product could be offered and used in other businesses, for instance in care homes. There it would have slightly different usage, it would function as a reminder to go to group activities and move after two hours.

Our product could be offered and used in other businesses, for instance in care homes. There it would have slightly different usage, it would function as a reminder to go to group activities and move after two hours.

In general, our users would probably possess those characteristics:

- People who do not like social media, but want to socialize and attend some events. They like to try out new things.
- People who would like to have a friendly reminder for certain activities.
- Lonely people who would like to connect again.
- People that have already a bit of motivation to be active and want a more social and healthy lifestyle, but need to have small nudges.

Fortunately, next week our team will have the chance to test some of those assumptions in one care home in Eindhoven. There will be 2 user studies, one is a general interview and questions about our product and the other of the actual testing of it.

The product

In this chapter, we present our envisioned product. This would be the product we want to bring on the market in the future. At this moment we are working on the MVP, which has a little less functionality. To read about our MVP please see chapter "The MVP", page 13. The goal, features, user journey and requirements of this product will be discussed.

Goal

Moti is a system intended to keep people at the age of 65 until 100 moving regularly every single day. This is done with motivational options, about the weather, festivals or other users in the neighborhood. Moti's system, for now, consists of a pillow and a smart home speaker. The pillow has a small display on the side with three buttons. A button for like, neutral and dislike. This display helps to understand the user more, getting to know the interests of the user for a better motivation of the speaker to the user. The pillow is intended to lay on the favorite chair of the user or can also be switched from chair to couch. The speaker can be placed anywhere in the house where the user is able to hear the audio.

The pillow registers the time that the user is sitting. When it is over one hour the speaker will say something like 'What about having a cup of tea?' or 'Maybe get yourself a glass of water?' and after two hours of sitting the option is more like this: 'It is nice weather, do you like to go for a stroll?'. Both help to motivate the user to keep exercising regularly during the day.

Moving regularly prevents diseases caused by inactivity for a long time, for example, muscle stiffness, elevated blood pressure and high blood sugar [6].

Features

Moti is a system that searches the internet for weather data, event data (like festivals, concerts or book readings) and hike and bike routes in the neighbourhood. This information is used to create options to go outside. Next to that, the system connects with other pillows and their users to see who is available to go out together in the neighborhood. It keeps track of these plans in an agenda.

The pillow communicates with the speaker to share input from both the buttons and the weight sensors. The user causes the buttons on the side of the pillow to react on the options to move. This input will be translated into data before it is sent to the smart home speaker. There the data and the data from the internet are used to determine what the speaker will say, which is preprogrammed.

User journey

This use case has only two regular interactions. The day to day interaction with the pillow and the day to day interaction with the website. The former is circular and can be seen in figure 1. The latter is split in two, see figure 2. Once you receive the pillow after buying it you need to install the pillow. This will go through the website and has a step by step guide built-in. The installation can be stressful or difficult for the elderly and thus can also be done by the caregiver or someone from our service. The second part of the website diagram is about how to look at your process (how many times the user stands up, after how long and how long it takes for them to sit down again)

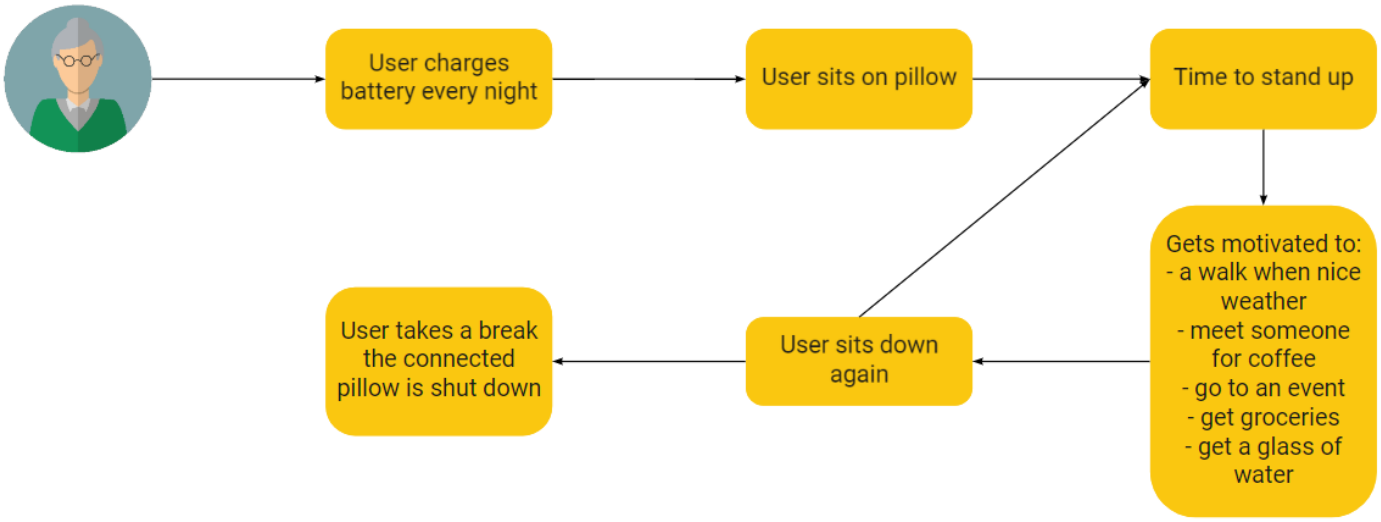

Figure 1: Scenario 1: Daily use of Moti

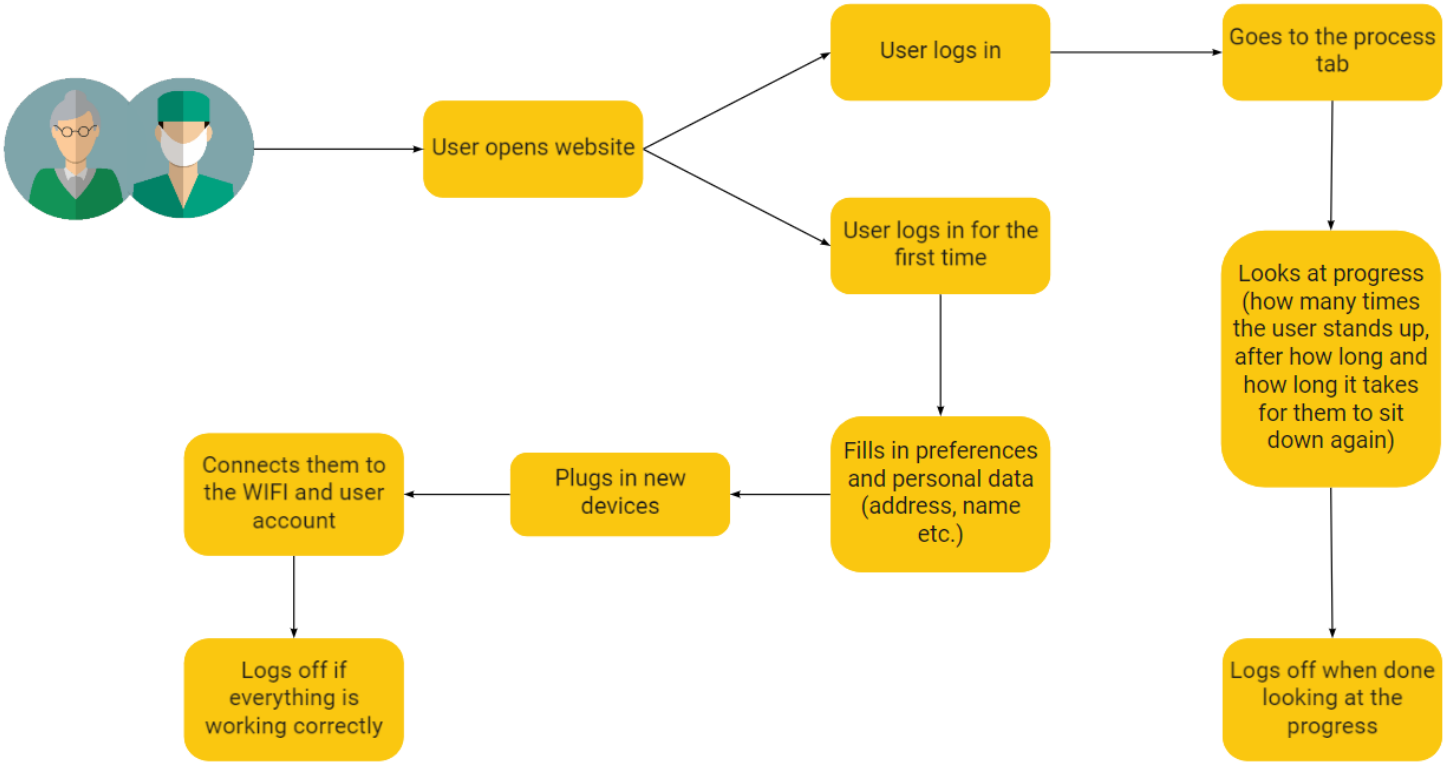

Figure 2: Scenario 2: Use of Moti's website

Requirements

As our product needs to be built in the near future we have set up some requirements. First, the user interface will be discussed. Next, the software and hardware requirements will be discussed.

User interface

The general requirements for the user interface are simple:

- The system should be a finished product.
- The pillow should be comfortable for the elderly to sit on, but they still need to be able to rise from their chair smoothly. Elderly have trouble getting up from their chair if they sink in too much.
- The system should be offered in multiple colors, but have a complete feel.

The general style guide for Moti will have two basic colors and three more popping colors to add details, see figure 3.

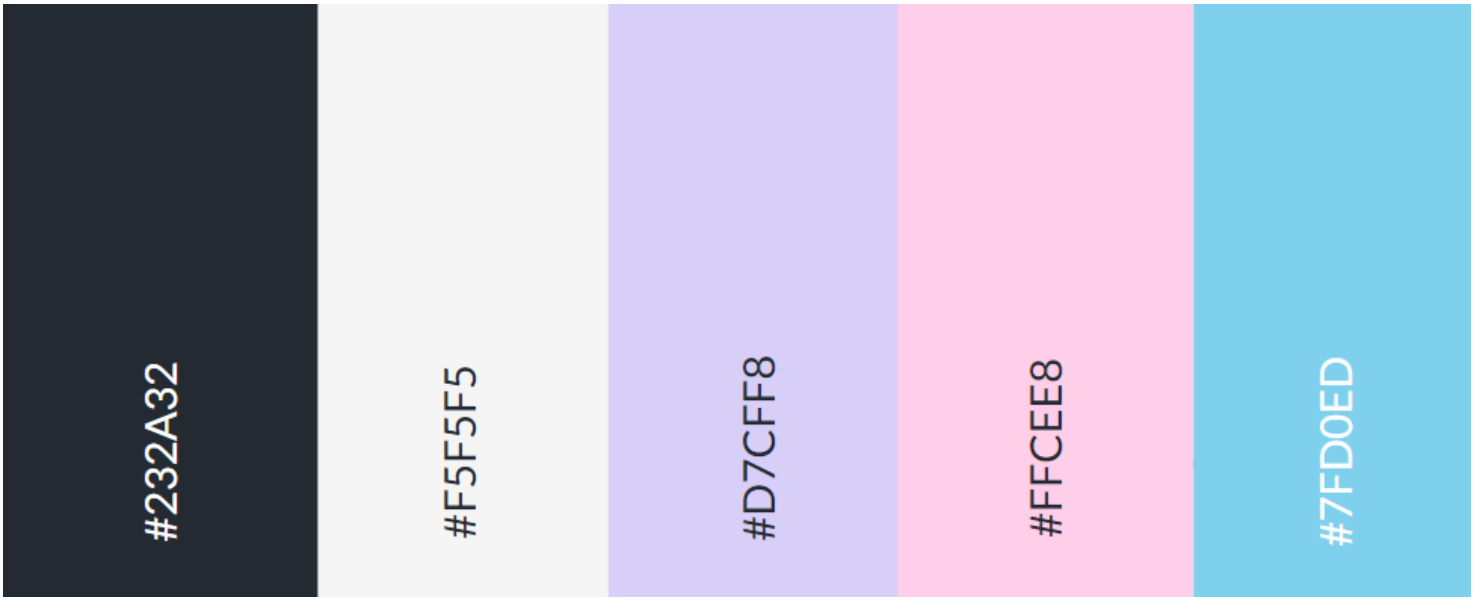

Figure 3: The color palette

The color palette can be used to color all appliances in the system. This can be done with a subtle basic and adding the popping colors as details. All products will have a version with one of the popping colors. For the interface (buttons on the pillow) we will only use either white or black because their symbols are green (like), orange (neutral), and red (dislike). The user then can choose to identify the buttons by symbol, color or placement. As for the interface within the Google Home, Alexa or Candle the same colors will be used.

Interface layout on the web-app:

As for the layout, there are two parts, one for the potential customer and one for the subscripted customer.

A potential user needs to see:

1. Clear overview of prices and services.
2. Clear overview of all the functions of the system.
3. Clear section about our company and who we are.
4. Clear section about how we use their data.

The subscripted user needs to be able to see three main things there:
1. Their personal data.
2. The persona they choose for the pillow.
3. The checkpoint for the connection

These will be all visible on the home screen. You can click on every one of them and see a separate menu dedicated to that subject.

See https://lisannedejonge.wixsite.com/mijnsite for the set-up.

Interface layout on the pillow:

On the front side of the pillow will be a small horizontal box with three buttons. On each button is a small symbol, a happy face (colored green), a neutral face (colored orange) and a sad face (colored red), see figure 4.

Figure 4: Buttons on the side of the pillow

Software & Hardware

Hardware-software interaction:

This interaction exists out of three parts:
- Weight sensors and buttons give input to a microcontroller in the pillow. The microcontroller will convert this input to data and send it over a WIFI connection to the smart home speaker.
- The smart home speaker will process the data and perform actions accordingly.
- The actions mostly result in audio messages played by the speaker.

List of devices:

- Weight sensor
- 3 buttons
- Microcontroller with WIFI module
- The smart home speaker

Network requirements:

Both the microcontroller and smart home speaker need a steady network connection.

The three main communications:

- The pillow will be connected to the Smart home speaker through a WIFI connection, which is used to transfer input data from the pillow to the Smart home speaker.
- The Smart home speaker will have a connection to the internet through WIFI. With this connection weather-, news-, event- and calendar-data will be obtained. Next to that, the WIFI connection can access the user-database server. In the server option-data from different users will be obtained.
- The Smart home speaker will send audio fragments to its internal speaker.

Database management system:

As said before a server is needed to get data from the different users. We need a server that is compatible with the Smart home hub. There are three main world cloud hosting services, for this product we choose Microsoft Azure. Microsoft Azure has many options for downloading and uploading data.

Libraries:

There needs to be a complete audio library with sentences and words. There is not yet chosen a specific library to do this in.

Data flow

The data flow in the envisioned product is shown in the diagram below, see figure 5, which shows the dataflow over the entire circuit.

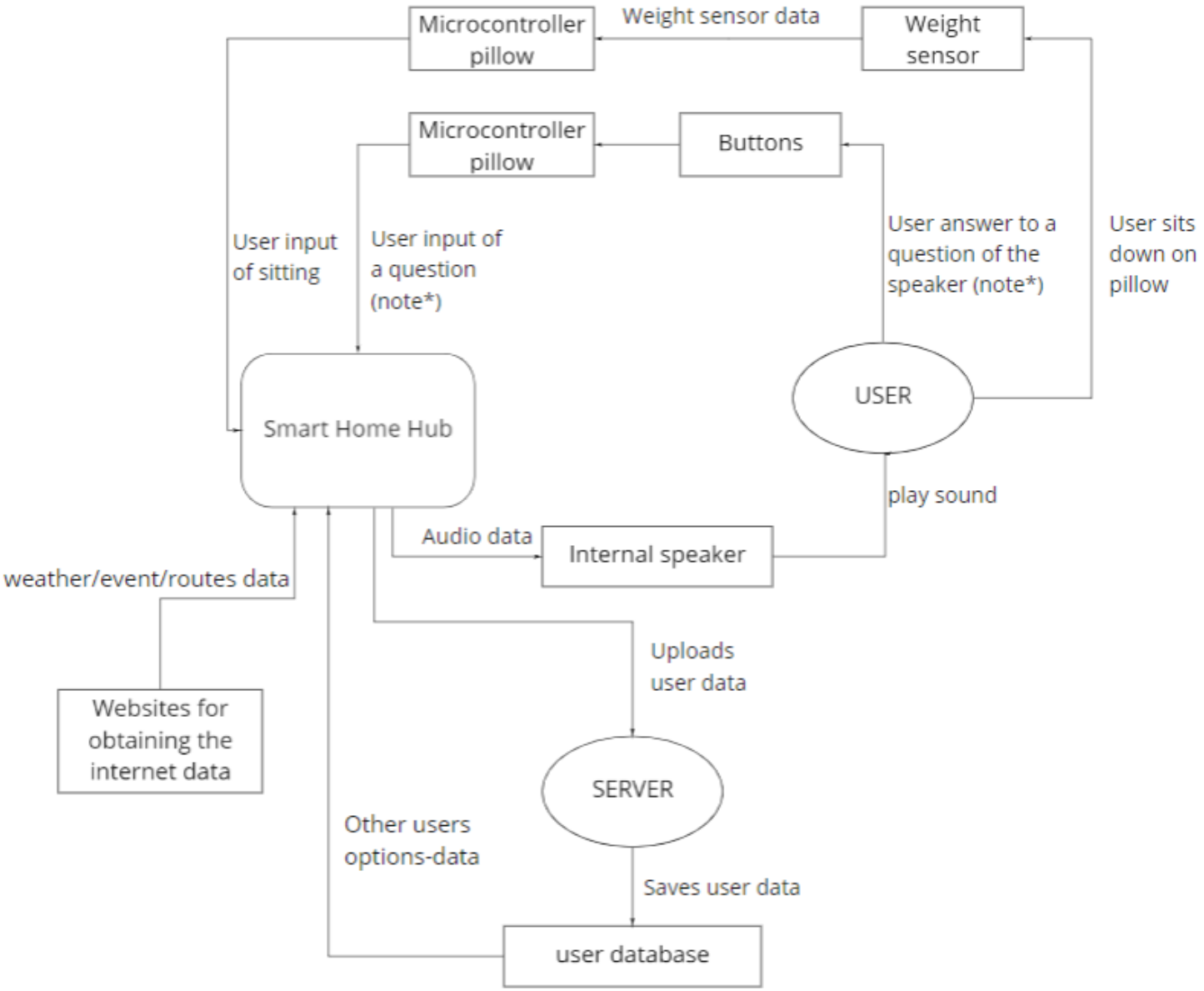

Figure 5: Data flow diagram of the entire system

*Note - This part of the diagram is only relevant when the user is asked a question by the system.

Future Plans

The future plans for this product include expanding the line of products, a business agreement with either Candle, Google Home or Alexa and more diversity in color and form.

The plan is that Moti can be expanded with new products that for example watch your health more, more social options and other pains our users experience. All these will be centred around the Smart Home hub and probably multiple speakers otherwise the motivation will not be heard everywhere.

We hope to make a business agreement with either Candle, Google Home or Alexa as we need a smart home hub for our system. As Candle is a smaller business and not collecting any data from you we hope to get a deal with them [3]. This deal will entail that we can deliver one of their systems by every Moti system we provide.

We start with about 5 different colors and about 10 different designs in total. To make sure everyone gets what they want in color, pattern and for the pillow thickness and softness can also play a role. That is why, when needed, we will expand our existing line of products to be more diverse.

The pitch

for investors

To start off with a little introduction, we are 3 students from the Technical University of Eindhoven. I am (Anna/Nevena/Lisanne) and these are my co-students (Anna/Nevena/Lisanne) and (Anna/Nevena/Lisanne). We are here to present to you Moti. Moti is a Smart Home system.

Moti is a system designed to keep people at the age of 65 until 100 moving regularly every single day. He motivates and reminds you to move every two hours or one hour. This will help the elderly overcome muscle stiffness and reduce the risk of other diseases that come with sitting too long, like an elevated blood pressure at bay. As this is a long term benefit and will not stimulate everybody we came up with a short term benefit as well. The motivational options are linked to one's interests. A nature lover will get lots of options to go to the park or buy flowers at the local store. A booklover will be told about events around books and trips to the library. Next to their interests, we speak to something else, their social life. Many elderly are lonely and with age sadly also comes the passing of friends. Therefore our activities are also to bring people together, to get to know new people and stimulate social contact. Like a walk in the park together, meet someone at the café or even go to a concert together. The main categories we take to motivate are event data, weather data, routes to bike or hike and other Moti users their data.

Our system consists of two things for the moment, a smart home speaker and a smart pillow. On the front side of the pillow sits an interface with three buttons. With these, the user can give feedback on the suggestions given by Moti. This input will go to a Wifi connected microcontroller, which then sends it to the smart home speaker. Next to the buttons, there are weight sensors in the pillow. The microcontroller will also send their input to the smart home speaker. The smart home speaker gets data from the microcontroller as well as collecting information through the internet and our own server. On our server, the data of users is stored.

Our business proposal is a subscription service. The user will pay €7,50 monthly to get Moti and a complete service of installation, updating and repair or help. They can unsubscribe every month, but we have a deal set to get them to stay. The first month is free as a try-out. Then you can pay for a whole year and have a reduced price. As we need a smart home speaker we plan to have a business agreement with Candle, a small company that makes smart home speakers with no intention to gather data from our customers. In the future, our product can be expanded with more products that pay more detailed attention to, for instance, your health, your plants or your groceries.

To launch our product successfully onto the market we will need around €395.000,- a lot of money, but with revenue going up after starting it will go well. The revenue goes up as our product will be more known by users telling others and customers seeing our product in ads via social media. Because health is always an important feature users will subscribe and stay with our product. By giving them the motivation to move and at the same time to stay with our product. Giving them a spark after meeting with friends, family or new people. We ask you as an investor only to help with the starting capital. The Fitbit is already a great success, this will be the same for our product as it is the Fitbit for the elderly.

The business case

Opex & Capex

Opex is the Operating expenses, the day-to-day expenses that a company makes to keep running. For example, the salaries that have to be paid, not every day but every month to keep all the employees happy. The office rent that needs to be paid every month, to have space where our company can operate in. Moreover, in order to maintain our website online, we will need to pay every month money to an AWS hosting company. The small advertisements we want to keep every month on social media platforms, to keep a reminder for users or new customers. Finally, our operating expenses will always include the costs for the materials needed to assemble the product.

Capex is the Capital expenditures, the big investments of a company for the long-term. Big marketing advertisements on social media platforms to reach the most people at the start for larger interest and knowledge of our company. The launch and production costs of the product (See tab Unit costs in the spreadsheet of Appendix A.3 Business case - Excel spreadsheet costs). This is a big investment at the beginning because there will be hopefully a lot of customers getting the subscription, but after a while, less new users will buy the subscription and some people will stop with their subscription so there have to be fewer products manufactured and old products can be improved and given to new users. This way there will be less money needed for the production.

Competitors

By doing some research we found three companies that have products with similarities. First, the product, Happy Walking [5]. Happy Walking is a device, smartwatch, with an app. Happy Walking tries to motivate the elderly to move more by motivational quotes of their family. Family members can send them a message after the user made a stroll. Giving them motivational quotes like, 'Well done grandpa!'. Our product will give motivational quotes before and after the stroll. Moti can't forget to give a motivational quote because it is already preprogrammed to do so, this isn't the case by Happy Walking as family members are the ones that give the motivational speech.

Secondly: PAMM [7]. PAMM helps the elderly by walking, this eventually gives the elderly motivation to go for a stroll. Only helping them with walking can make the elderly forget to go for a walk. Moti will remind them in a stimulating way. This will make sure they make their stroll.

The third product that is similar to ours is ElliQ. ElliQ is the debut of Intuition Robotics. They are now beta testing throughout the U.S.. ElliQ is a small robot that can be placed on any surface in the home. It needs a power source and a broadband WIFI connection. ElliQ is a smart home hub and companion at the same time for the elderly. It can stream music, have conversations, remind appointments, read weather and news and a lot more. It has a screen to show incoming messages [7].
With this product in mind, our greatest selling point is that we can monitor how long they sit. ElliQ can only suggest things and does not register how long somebody is sitting. This makes our product more interesting as it can monitor this and make suggestions based on weather, events and appointments. They have not yet published an article when positive returns are expected, but the project is an investment of about 36 million [4].
It would be better for an internal investor to invest in our product as it has all aspects. Our product motivates the elderly to move, it watches their health, it keeps track of how long they sit, it presents data to them and can do so much more.

Researching through possible substitutes, we have found that a product with almost the same user interface exists on the market [1]. It is again a smart cushion, which monitors the user's sitting time and alerts you take breaks. It consists of a pillow and an app. The smart cushion is for a wider target group that involves everyone, while our product intention is to suit elderly needs. This includes making the pillow a more comfortable and easier interface for the elderly. For example, even though we may make an app or website to buy our product later, it will still not be a central device of our service as it is in the smart cushion. Another difference is that the Moti will strive not only to remind the elderly of standing after a long period of sitting but will also incorporate ways to motivate them to lead a more social and active lifestyle. Last but not least, the price at which our product will be available is far less than the price of the smart cushion.

Subscription

We have chosen our product to be a service for which you can subscribe. Our monthly subscription would be €7,50 per month, money our target group presumably can pay as they have their own money savings or pension. The service will help with installation, repairs and updates something very valuable to our user group as they often fear that they are not able to keep up with the new technologies. A benefit of a subscription model for our user is that they do not have to pay again for repairments or new updates as they are included in the subscription price. By updating Moti regularly we try to keep the user interested in our product. This leads to continuing monthly subscriptions. Giving an extra option when you subscribe for a year, offering them Moti plus a Candle Smart speaker, for example, makes it even more interesting to stay with our product for a longer period of time. See Appendix A.1 Business case - What to charge for? To who?.

Revenue

The total revenue from the E-commerce model is €2,105.22. It would take 7 months of not selling anything to go bankrupt. Every month we do sell and we will have a revenue of about €300.000,-. The total revenue after one year according to the Saas model will be €101,763.21.

For an internal investor, it is a smart point to invest in our company because we will have subscriptions that ensure money every month. As well as that in the future we would like to have doctors promoting our product because it helps our target group in the long term to live a healthier life. Our product is a complete package. We have the product, service and website to sell. Our launch cost will be around €395.000,- a lot of money, but with revenue going up after starting it will go well. The revenue goes up as our product will be more known by users telling others and customers seeing our product in ads via social media.

Because health is always an important feature users will subscribe and stay with our product. By giving them the motivation to move and at the same time to stay with our product. Giving them a spark after meeting with friends, family or new people. An investor should only have to help with the starting capital. The Fitbit is already a great success, this will be the same for our product as it is the Fitbit for the elderly.
See appendix A.4 Business case - Business model canvas and A.2 Business case - Lean canvas.

To validate Moti we are now interviewing participants and will analyze the outcomes and use this in the prototype to validate the prototype as well with our target group.

The value proposition

In the start of our process we made a value proposition, to see how our customer segment works and what the values of our product are. The value proposition can be seen in figure 6.

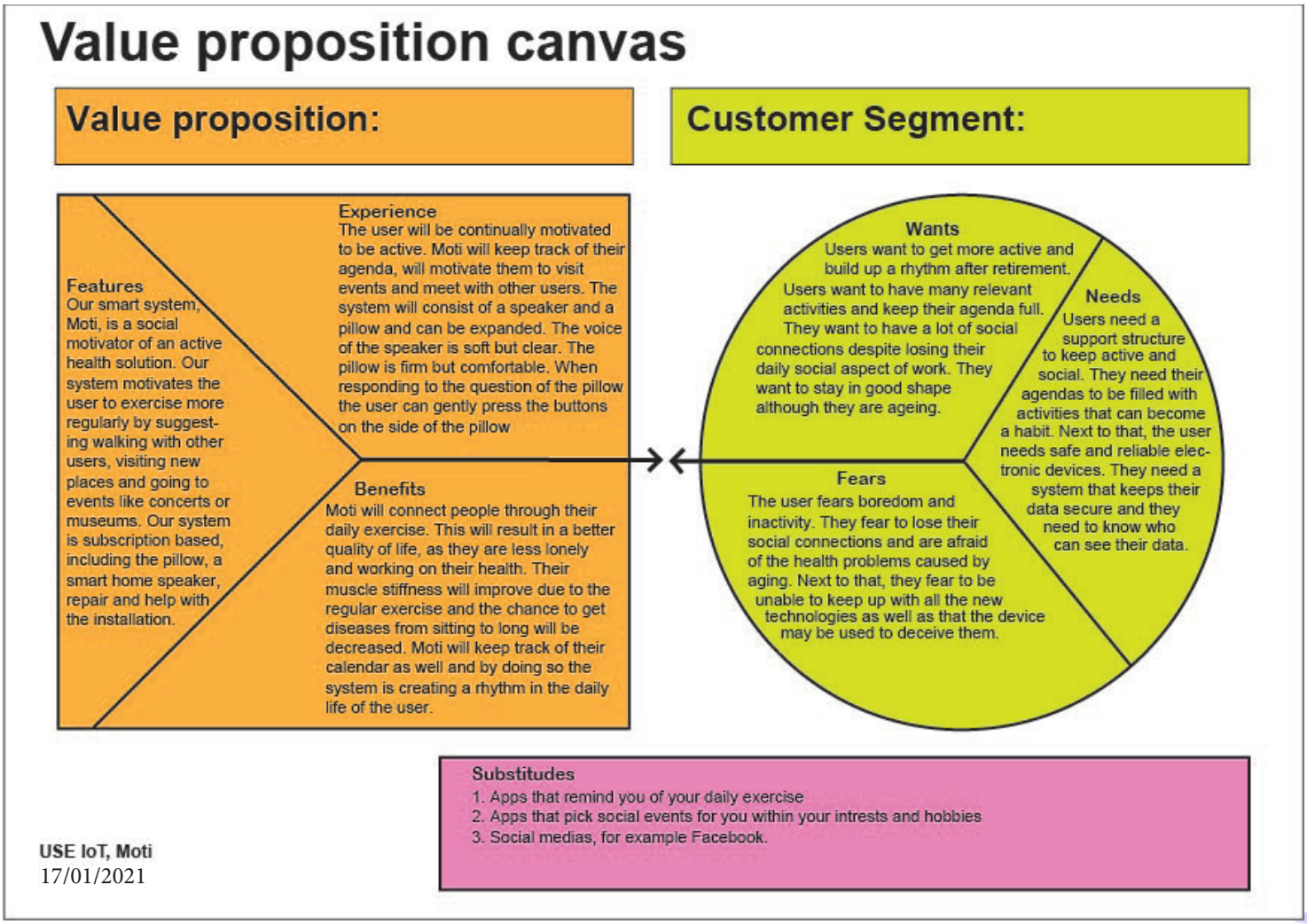

Figure 6: The value proposition of Moti.

Moti focuses on three main pains and 2 smaller pains. As our system can be expanded both in its software and in the number of products that work in our system we can in the future focus on more pains and the activities we can provide to let the customer gain from it. All pains are listed in the figure 7 seen below.

Pain	Activity	Gain	
The elderly do not have the motivation to move, meet new people or take care of themselves and their health.	Moti can motivate elderly by stimulating them to do small things like getting a glass of water or bigger things like going for a walk in the park. Users will be motivated with their own interests, like dancing, hiking, biking or going to the library.	They start moving again, can meet new people and take better care of themselves and their health. As Moti keeps track of all the users' accomplishments it stimulates you to do bigger things or just stay where you are, as that is already a big improvement.	Short-term
The elderly sit for too long without a break. Research shows that sitting more than 2 hours already elevates your blood pressure, causes muscle stiffness and other diseases.	Moti reminds and stimulates the user to move after a maximum of two hours sitting.	As the elderly move more regularly they improve their health solely and steadily build up more condition against the problems ageing brings.	Long-term
The lack of social contact in the lives of many elderly. This causes the user to feel lonely or even become depressed.	Moti motivates not only with activities, but it also stimulates with meeting new people and doing activities together or activities we're the user can meet new people. This can be walking in the park or going to a café.	The elderly now meet new people and can do activities together with other users, family or friends.	Short-term
Elderly become more forgetful when they age. As a result, they tend to forget appointments, medicine and simple tasks like doing groceries.	Moti's system keeps track of the users' appointments, medicine and general agenda of the day. It will remind the user what they have planned that day in the morning as well as reminding the user when they need to leave for the appointment.	Now the user will not forget their appointments, medicine and other tasks they had to do that day.	Short-term
Many elderly struggle to install modern technology or do not fully understand it.	Moti has a complete service model. Employees will help you install, update and repair Moti when needed. This service is included in the monthly subscription	Elderly do not have to instal or update it themselves. And will be helped if something is not working.	Short-term

Figure 7: Pain, Activity, gain and short- or long-term benefit graphic

The MVP

The MVP is the minimal viable product. It is built in order to test our product features and even more important our value proposition. Examining our value proposition will help us to understand whether the product we have designed and its intends, are fulfilling the users needs and therefore worth making it.

For the prototype the team needed:

- Rpi with:
  - RAM: at least 512MB.
  - Built-in Wireless: WiFi + Bluetooth 4.1 + BLE (Bluetooth Low Energy)
- A rechargeable battery (for this a power bank was used)
- A speaker which will announce the motivational messages
- 1 weight sensors to sense when the user sits
- 3 buttons which will be mainly used for answering the motivational messages (questions) in order to personalize the options given by Moti and improve the user experience
- A pillow with a pillow case

The raspberry Pi "zero WH" is suitable for our demands. It is a tiny and cheap device, but nevertheless really powerful and capable of running most of the processing needed in the pillow. Moreover, it was easily put in the pillow itself. Next to that, the WIFI (802.11) and Bluetooth connection were smoothly established on the Rpi.
Our team has used a simple Bluetooth speaker. The speaker receives the audio files with the recorded sentences from the RPi through Bluetooth. To sense when someone is sitting, a weight sensor(s) will be needed in the pillow. These will be connected to the raspberry Pi through the GPIO pins. The GPIO pins will be also used for attaching the 3 buttons to the RPi. For reading the inputs of the sensors python's libraries, gpiozero and hx711, were added.

A picture of the whole data flow is presented on the diagrams below, see figures 8 & 9.

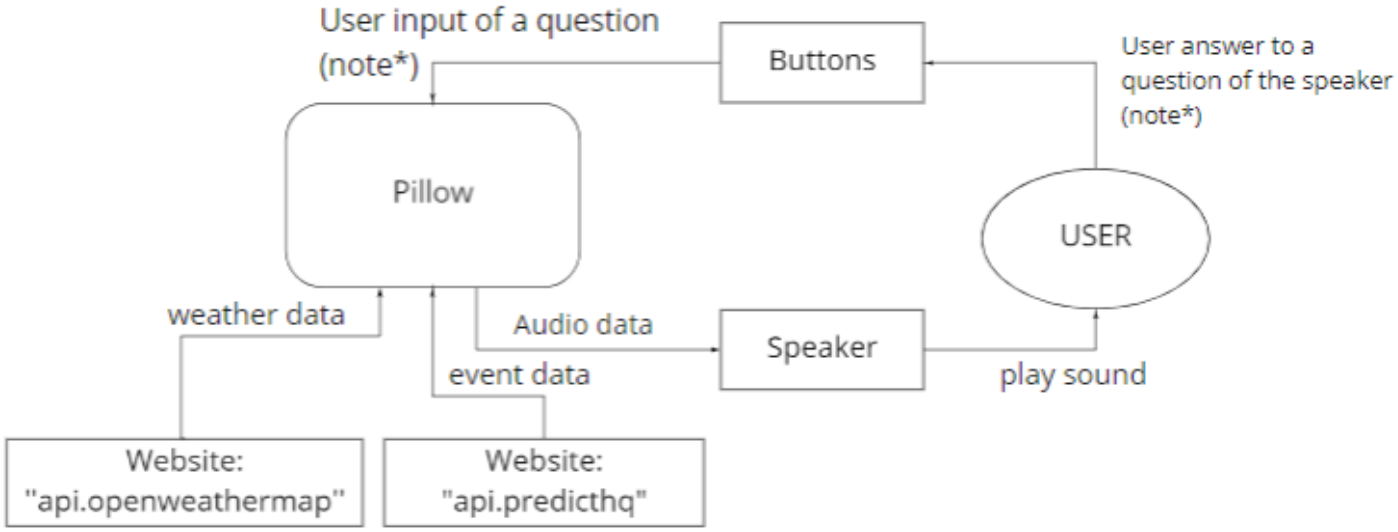

Figure 8: Data flow diagram of the entire system
*Note - This part of the diagram is only relevant when the user is asked a question by the system.

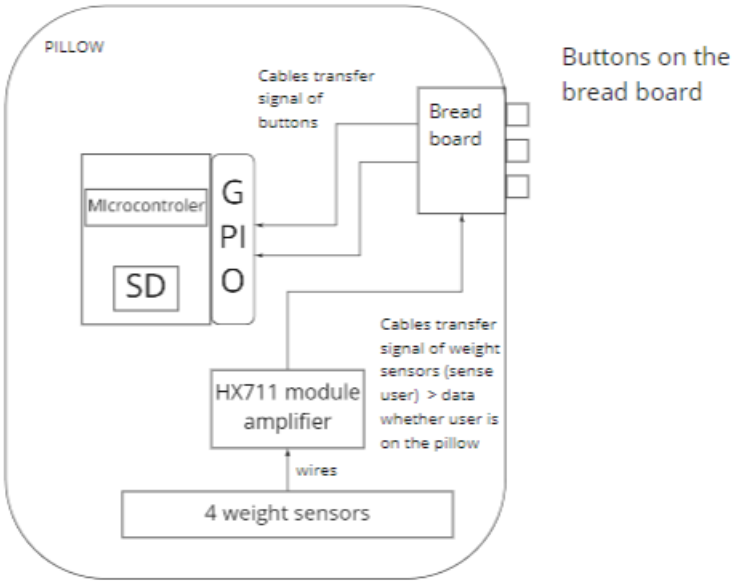

Figure 9: Data flow diagram inside the pillow.

The below diagrams will explain the main responsibilities which each component is supposed to perform with in the system, see table 1. After that a software diagram, see figure 10, is displaying all software that is now on the Rpi.

Main components	Responsibilities
Website	• Markets and advertises the pillow; • Purchase a subscription and possible extend of a subscription • Display data and information about the product; • Gives opportunity for users to contact with the developers of the pillow for some issues, they run into
Raspberry Pi	• The microcontroller on (Raspberry Pi) controls the whole system; • It obtains input signal from the buttons and the weight sensors when they are being triggered.
Weight sensors	Sense user whether user is standing and sitting on the pillow and notifies RPi
Speaker	Plays audio files when RPi sends them
Buttons	Used only when the speaker asks the user a question; Yes/No/Neutral - help for better user interface

Table 1: the main functionality of every component

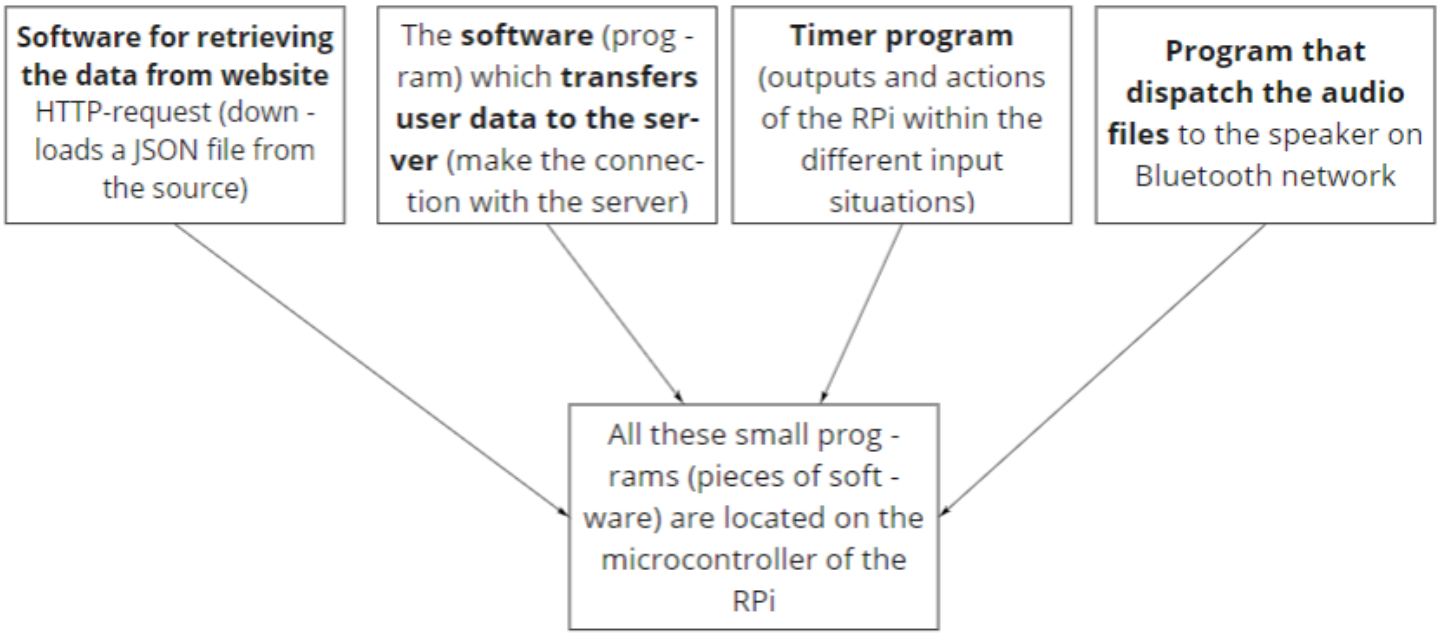

Figure 10: Pieces of software on RPi

Currently, the website consists only of the frontend. There is no deployed backend. This means it is possible to display information for the product and the relevant features, but making a real account is not feasible. Nevertheless, that's not a problem for the MVP, since the great importance is to present our product. The only value that making an account would add is a possible display of the sitting data as well as the input of interests. The interest input is not currently meaningful since for the MVP the team decided to make the pillow general, which is offering a random choice between some activities. As we are missing an electrical engineering student, we are somewhat slower in building our MVP. In the diagram below we show the impact, urgency and implemented state of the features of the MVP, see figure 11.

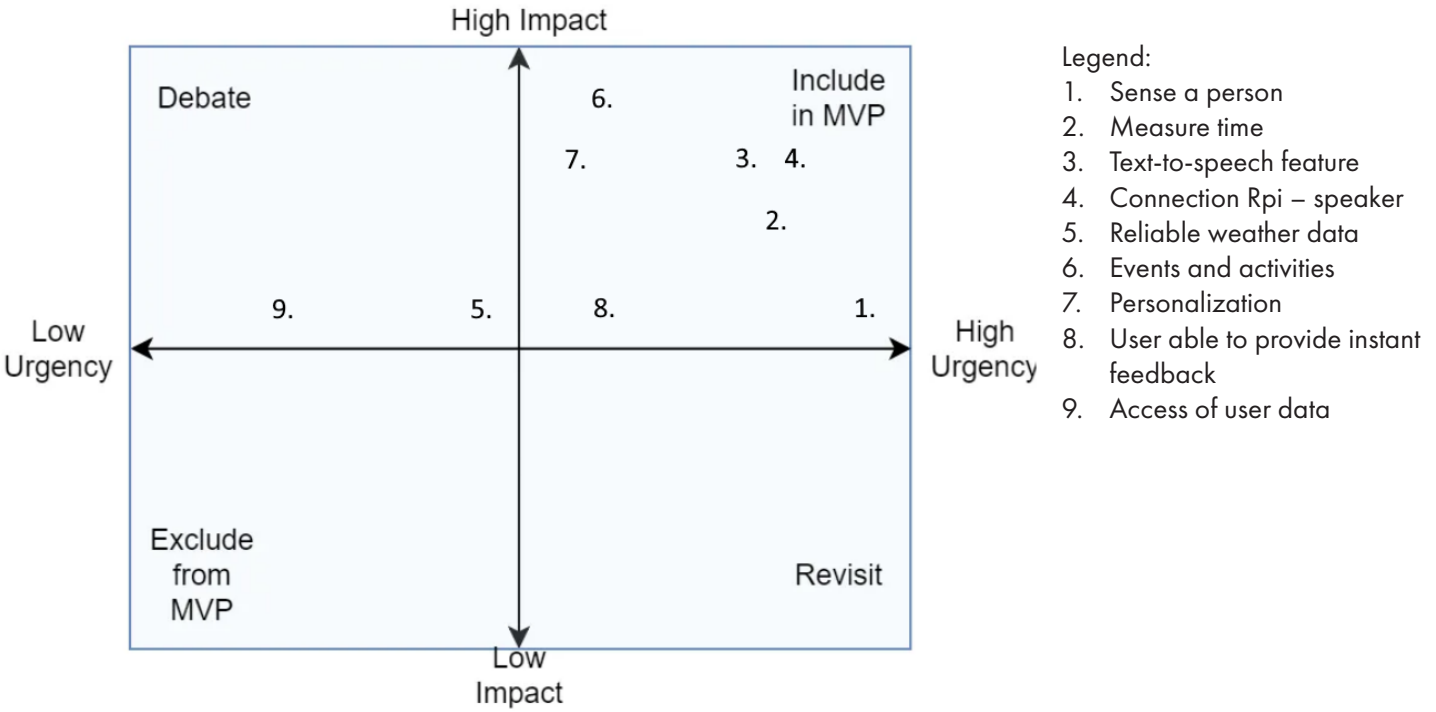

Figure 11: Diagram of the MVP's features, see legend

Technical features

The pillow can sense a person when it is on and off the pillow. Measuring time is done by importing "datetime" in the source code.
Our product is able to notify the user through a speaker which is connected to the RPi. The team came up with 2 options for implementing this feature. The first option is to use pre-recorded sentences, which was done manually by one of our teammates. The problem here is that it could become a lot of work. Once our product has extended its abilities, this will be impossible to do. The other option was to install a text-speech package on Rpi. It was tested, but unfortunately, the version which was used was too robotic and had an incomprehensible voice. There is a way to improve this by adding some physical parts. This is a high priority and our team will consider it soon.
The weather is checked before offering a walk or going outside. For getting the desirable data, communication was made through the raspberry Pi and the internet resources using HTTP-requests.

In order to allow the users to access their data, the data should be uploaded to the server. Yet that's not in the prototype due to the short time and the fact that our team missed one technical person in our group. The consequences of not implementing this feature is that it became impossible to actually connect with different users. This was planned to be realized through gathering their agendas and also the location data through the website. Nevertheless, currently, connecting users is something not that important for the actual test due to the current COVID-19 measures.

The team is using the apiweather.com website, which provides inexhaustible information for weather for all cities and places around the world. So we don't have any restriction in terms of whereof place where the product could be offered. The website event data provides data for all registered events around the world as well. Events/activities are filtered depending on the place and the time and are being randomly offered to our users.

Personalization was planned to be available through the feedback from the buttons and the user input from the website. However, this was a bit difficult for us and beyond the available time, but it is still a high priority, therefore it should be considered definitely as a next step. The team analyzed and brainstormed on the way Moti could be offered to its users. The first way was offering only the internal brain of the system and clients can input it in their own pillows before using it. With this idea, the safety of the electronics and functionality of the weight sensor couldn't be guaranteed. Next to that, the looks of the pillow couldn't show the characteristics. Therefore, this idea was not in favor for us since the pillow's characteristics will influence the comfortability and also safeness of the user. That's why the second way of offering the pillow was chosen. A variety of the different pillow cases and some standard sizes which all need to fit the hardware in, can be considered.

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Appendix

A.1 Business Case - Lean Canvas

Lean Business Canvas - Moti

Problem	Solution	Unique value proposition	Unfair advantage	Customer segments
1. They lack the motivation to stand-up and exercise, which is caused by pains due to ageing and that the progress is only visible in the long term 2. They are often lonely because there are less social events in their lives, think about going out for a coffee till going to concerts. 3. Sitting for too long causes muscle mass loss, elevated blood pressure and other diseases. Existing alternatives - Apps that nudge the user to train to stay active. - Fit-bits with walking goals, that track your health. - Sit-up chairs that help people rise from their chair. - Seeing weather data online or in an app. - Know where friends are by looking at Snapchat. - Online fitness videos on YouTube.	1. Lack of motivation -> Giving them examples of social events/connections 2. Sitting too much -> Making sure they exercise enough by motivating **Key metrics** The numbers that tell us how our business is doing are usage rate, revenue, feedback rates and subscription terminations. Feedback can be given in the store or on the website.	We are the Connected Pillow, existing of a pillow and a speaker. Ensuring to motivate the user to exercise enough on a daily basis. Motivated by examples of social events of their interests that are mentioned to them in a gentle way. The Connected Pillow will ensure in the long term for a healthier lifestyle. High-level concept Fitbit for elderly	The product contributes not only to get more exercise it also helps you to bring back to social aspects in their lives by proposing events, walks and going out for coffee with other users. The product helps you to make new connections and even friends. Next to that, it can display weather data or festival data, which would also be very nice as the elderly often have trouble using the websites and apps. **Channels** Our path to customers is via advertisements, like social media platforms like Facebook, Instagram and LinkedIn. As well as via the Television, doctors that could be in the future promoting our product because it has health benefits on the long term. Finally via our store.	- Family members - Friends of the elderly - Relatives who would buy the product as present to motivate their elderly to be more active - Caretakers - Most of the time elderly who live alone or in care homes - Elderly who would like to try something different and who can afford the product Early adopters The ideal customers are elderly (age 65 and over) would have at least one of the following characteristics: - People who don't like social media, but want to socialize and attend some events. They like to try out new things.

Cost structure	Revenue streams
The costs our service have to pay are the repairment of the hardware and software of the pillow because this will be included in the subscription. As well as for advertising on TV and social media. Paying the subscription to have our website. Material costs for the production of our product as well as labour that manufacturer the product, repairing and for people maintaining the software. There will be shipping costs when people buy their product on our website and we have to ship it to them. The department store wants money. The repairing costs are variable, that depends on the users.	Our revenue streams will be consisting of subscription models with our users. The subscription model payment will be every quartile. To achieve a positive valuation our revenue has to be €2,105.22.

A.2 Business Case - Excel spreadsheet launch

https://docs.google.com/spreadsheets/d/1DbyYlTCFbwq3Q6VG76v777u7XPhsm7wepPMYS_2GkNA/edit?usp=sharing

A.3 Business Case - What to charge for? To who?

Product	**Content**	**Operatiom & Service**
Transaction Purchase -	*Transaction* Incidental -	*Transaction* Incidental -
Transaction Lease In leasing our concept, the Connected Pillow, will be provided.	*Transaction* Subscription The subscription will give the user access to weather data and festival or social event data.	*Transaction* Subscription In the subscription, there is included repairment and updates for total service.
Customer Individual user The individual users are from the age of 65 until 100. They live in a care home or on their own without a partner. People living in their own house who don't have a pet to walk with. Elderly who are lonely and retired. The income of the user should be average or higher to be able to pay the subscription.	*Customer* Individual user -	*Customer* Individual user -
Customer Person who buys/has bought your product as a personal gift to individual user Family members and friends of the elderly who saw the pillow or heard of it through friends or advertisements. They could have already experienced it.	*Customer* Person who buys/has bought your product as a personal gift to individual user -	*Customer* Person who buys/has bought your product as a personal gift to individual user -

The rest of the table is on the next page.

Customer Business who buys your product to improve (quality, efficiency) their professional service to individual users or groups of users. Elderly care homes are potential buyers for us because the product is beneficial for their service. To help people keep moving and to prevent depressions.	*Customer* Business who buys your product to improve (quality, efficiency) their professional service to individual users or groups of users. Our product will help the staff to keep track better of who needs to move more.	*Customer* Business who buys your product to improve (quality, efficiency) their professional service to individual users or groups of users. -
	Customer Business who wants message delivered via your product (eg. advertisers) -	

A.4 Business Case - Business model canvas

https://drive.google.com/file/d/1NgBebbiBZ5Hr0g33yO2WgDbqurces1-G/view?usp=sharing