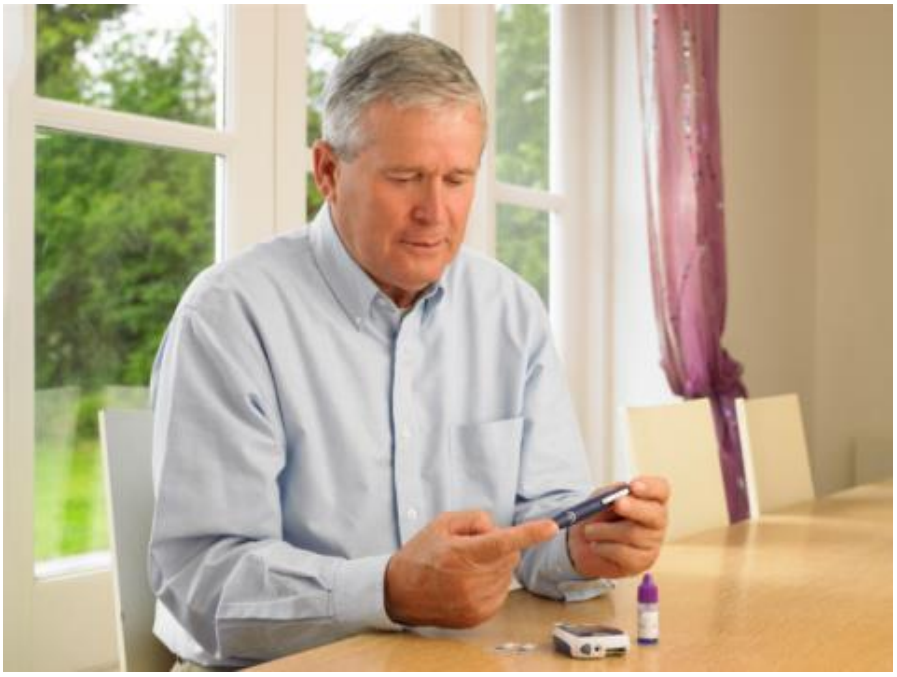
INDUSTRAIL DESIGN 6



Project 2 Design Brief

PETER FORRER – N9135065

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1.0 Introduction

This design brief responds to the research report by Peter Forrer in to people over 65 years of age, who were recently diagnosed with type 2 diabetes. Specifically, the project will focus on improving the health and wellbeing of the chosen user group with this condition through interactive design.

Research showed that people over 65 years of age who have been diagnosed with type 2 diabetes are looking for better ways to manage their condition while still being able to live a full life. It was also found that senior people find it difficult to understand the new medications being prescribes, which has caused them to make mistake or not take the medication at all. These issues are greatly enhanced by the limited time spent with doctors and specialists, effecting both their ability to understand the information given to them, but also the new lifestyle they need to manage.

Thus, by creating an interactive system that supports them on a daily basis would help improve the person of the health and wellbeing. While also helping the doctor manage the condition through the use of remote monitoring.

2.0 Aim

The aim of this project is to innovatively design an interactive product to facilitate a senior type 2 diabetic, in the daily task of monitoring edema and manage the medication intake. While tracking the conditions progress with updates to the doctor or specialist. With the goal of improve the health and wellbeing of the senior person and reducing the risk of medication misuse.

3.0 Objectives

To achieve this, aim the design will:

- Design for the Technology aware user
- Design a medical device for personal use
- Design a product which support three main functions
- Measure feet and ankles for swelling
- Inform person of status of feet and ankles
- Interact with them through feedback, status and alerts
- Include remote tracking

- Include a standard power port, which takes advantage of common power options.
- Design for mobility, easy to carry
- Fit into the over 65's lifestyle
- Target Inclusive, Intuitive, effortless design.
- Use common interaction to over 65's to facilitate easy learning

4.0 Problem Statement

Senior diabetes is a chronic health condition, which is made more challenging due to the need for self-management. Which is made more difficult with senior people due to the overwhelming demands made on them by the doctor and specialists. To self-manage the condition the person, need to check the blood glucoses levels, take multiple medication, eat healthy and monitor the feet for swelling. However, this is not always the case with many senior diabetics reporting confusion about the medication and the self-management tasks required by them.

Table: 1 - Problem Areas

1	Multiple Medication and information on daily requirements
2	The inability to self-manage condition due to limited education
3	The limited ability to maintain healthy diet plan
4	Reduced physical abilities
5	Reduced health due to bad diet causing a decrease in productivity
6	Attitude towards new diabetic condition

Table 1: Personal characteristics

	Attributes:
Age Group	65yrs and older
Education Level	Retired but working part-time
Socio-economics	Living with family.
Lifestyle	Physically passive/ mentally active
Emotions and attitudes (toward using a technology).	Minimal electronics at home, with the preference not use technology unless it has a purpose. But still find them self tech savvy.

5.0 Design Criteria

The design criteria used research collected from both primary and secondary sources. Which identified explicit goals that must be achieve, in order for the new product to be successfully beneficial to the senior, newly diagnosed type 2 diabetic. With the aim of enhancing and improve the health and wellbeing of the user group.

Design Considerations

- Device must offer an interactive solution to the chosen problem
- Device should inform user of situation through discreet means
- Product must be a wearable technology
- Product must not inhibit user movements
- Produce must provide feedback and Status to user about situation
- Product must monitor and send tracking information to Doctor or specialist
- Must take in to account the elderly persons abilities and previous knowledge

User Consideration

- Must accommodate the Senior over 65-person's abilities with technology
- Must us intuitive digital interface aimed at reducing learning curve
- Must enable awareness of medication dose
- Should aim to improve the health and wellbeing of the person
- Must not exacerbate an already time poor user
- Must not hinder user to perform daily duties

Defining the Context of Use

- Must be usable in the context it will be utilised, (elderly diabetic)
- Must be easy to transport
- Consideration of size and weight for elderly person
- Must consider how it is used at different times and conditions throughout work day
- Consideration of interaction with elderly person

Form / Function Resolution

- The form should be made as simple as possible to minimise breakage and bulk
- Function must be easy and require minimal instruction to understand for elderly
- Design should be intuitive and adaptive for elderly users
- Design need to take into account elderly persons knowledge of interactions

Materials / Manufacturing

The use of materials need to fit the concept but also show how it would be produced, this design must aim to keep costs down while considering the sustainability of the product as a whole

- Materials must be non-toxic
- Materials should be recyclable
- Materials should be appropriate for the elderly use

- Manufacturing must conform to the safety Consumer Product Safety Standards AS/NZS 3820 - Essential safety requirements for electrical equipment
- Manufacturing must conform to the safety Consumer Product Safety Standards: UL 4200A:2015 - Standard for Safety for Products Incorporating Batteries
- Manufacturing should be sustainable were possible

Safety Requirements

This will ensure quality control and industry standards are met for the best possible safety standards.

- Must be safe to use within the user context
- Must not have any defects that could adversely affect safe performance
- Must be tested to ensure safety of product use
- all parts must be not toxic to user
- Must adhere to Australia safety Standards and regulations (ACCC 2017 Wearable Products)

Maintenance / Repair

The final design should only need minimal maintenance and have replaceable parts to best support the concept's long service life. Key points being:

- Replaceable parts
- Modular design to assist user repairs

Sustainability

Sustainability is an important part of the design process and will be investigated throughout the design process to best find solution to problem areas. Furthermore, the balance between sustainable production and cost will be a priority to best fulfil all the needs of the final concept design.

6.0 Designer Profile

At ForrerHome Design, we are focused on the improvement of life through economically designed products aimed at maximising space for use in micro housing and portable dwellings. Our goal is to use design to uncover important aspects surrounding issues found in daily life and strike a well-balanced medium between economy and sustainability to best reach an idea solution.

ForrerHome Designs

Peter Forrer's past accomplishments include:

- Off-grid dwellings and portable housing
- Off-grid Amenities
- Product design and integration into micro Dwelling
- Fire Safety Products

7.0 Client Profile

PHILIPS

PHILIPS
HealthSuite
digital platform

A collaborative project between Philips Healthcare and Forrerhome Designs to tackle issues with senior diabetes. These issues are shown in ***Table: 1.*** With the goal of improving the health and wellbeing of people with diabetes and provide support for doctors and specialists through remote monitoring and tracking.

Business Name:

Philips Health - Health Management Corporation

Business contact details:

Phone: **1-877-295-0886**

Address: Philips North America Corporation
3000 Minuteman Road
M/S 109
Andover, MA 01810
USA

8.0 Analysis

Limitations of design

There are many possible limitations that can occur during the design process. Many issues are due to the failure to use a large enough research sample as this significantly limits the ability to derive broader conclusions from the results. However, the degree to which this reduces the quality of the design is determined by the understanding of the data collected.

By focusing on those limitations that have the greatest impact on the findings, as well as the ability to effectively answer research questions. The range of problem area that were found can be minimised, but never eliminated. Therefore, the limitation of the design while they are few, can still pose problem.

Mitigation issues

Risk management is an important part of the final design to best ensure the product produced is of the highest quality and the safest. It is acknowledging the existence of risk, and make a deliberate decision made to accept it without apply oneself to special efforts to control it. Approval of design project by project leaders is required.

Avoid: Adjustments to concept requirements or constraints to eliminate or reduce the risk. This adjustment could in-turn change the funding, schedule, or technical requirements.

Control: Implement criteria Standards to minimize the impact or likelihood of the risk.

Monitor: Monitor for changes that affect the design criteria and/or the impact it directly and identified risks listed in order of increasing seriousness of the risk.

Conclusion/Summary

In summary, this design proposal outlined the aim, objectives and criteria that will be followed to best produce a final concept, that will be the best resolution to the needs identified from research. For improving the health and wellbeing of elderly people with type 2 diabetes. ForrerHome Design will facilitate the design process, while attending regular meeting with the project mentors to inform on progress.

9.0 Schedule

Design Stages	**Information**	**Due date/Cost**
Stage 1 – User Research	• Problem analysed • Primary and secondary research • Research report with Opportunities found	14 August 2017 $ 1600.00
Stage 2 – Design Freeze	• Concept Design Proposal • Low Res Interactive Model • Design Brief • Client Proposal	18 September 2017 $ 2400.00
Stage 3 – Final Product Presentation	• Final Hi-res Model • Low-res Interactive Display • Presentation to Client • Product specification report • Fictional Video	28 October 2017 $ 3600.00

10.0 References

- The ACCC. (2017). Product Safety Australia. Retrieved May 5, 2017, from https://www.productsafety.gov.au/