KOKKUVÕTE

Käesoleva bakalaureusetöö käigus projekteeriti nutisõrmus ja selle adapter, mis hoiab endas faile ja meditsiinilisi andmeid, mis on kaitstud salasõnaga. Selle töö eesmärgiks oli teha mälupulk, mis oleks alati kättesaadav ja oleks abiks patsientidele.

Esimesena oli tehtud turu-uuring, mis näitas sarnaseid tooteid ja nende tunnusjooni. Siis tehti otsus valmistada nutisõrmust, mis oleks turvaline ja odavam kui teised.

Enne nutisõrmuse ja adapteri projekteerimist olid tehtud joonised, mis näitasid üldkuju mudelitest ning kus olid täpsed mõõtmed, mis sobisid autori sõrmele.

Edasi oli tehtud esimene 3D mudel, aga see ei sobinud, sest mälukiip oli teise suurusega. Siis mudel vahetati ja selleks modelleeriti adapter. Pärast modeleerimist prinditi mudelid laserpaagutusseadega Formiga P100.

Järgmine etapp oli panna need mudelid tööle. Sõrmusele liimiti USB mälupulgaga kiip ja selle peale keevitati neli kontakti metall plaatidega selleks, et see sobiks adapterile. Adapterisse olid pandud USB juhtmed, kus ühes otsas oli USB adapter ja teises metallplaadid, mis olid liimitud adapteri korpuse sisse.

Pärast prototüübi valmimist oli programmeeritud nutisõrmusesse kaust, kuhu salvestati kõik patsiendi meditsiinilised andmed.

Orienteeruv hind oli komplekteeritud detailide omahinnast, valmistamise hinnast, soovitud sissetulekust ja käibemaksust. Siit järeldus, et käesoleva nutisõrmuse maksumuseks kujunes 15,55 eurot.

Töö käigus tuvastati, et teine prototüüp tuli välja teistsugune sellest, nagu oli mõeldud. See ei olnud mugav, turvaline ja disainiliselt ilus.

Sellepärast oli otsustatud teha täiesti teise süsteemiga sõrmust, mis on veel odavam, mis on mugav kasutamisel, turvaline, funktsionaalne ja ilus.

Kolmandas prototüübis mälukiibi asemel oli kasutatud NFC andur, mille informatsiooni hoidmise võimekus oli vähem, aga teksti jaoks see ei tee ebamugavust, sest tekst ei võtta palju mahtu.

Kuna turul juba on tavaline sõrmus NFC anduriga, oli otsustatud panna juurde erinevate funktsioonidega otsikud. Esimene otsik on tavaline pudeliavaja, mis ei ole väga mugav kandmiseks, aga tõmbab palju tähelepanu sõrmusele, mis on hea

reklaam. Teine otsik on sõprade otsik, mis tõmbab enda poole teise sama sõrmust sama otsikuga, see on hea kingitus sõbrale või teisele poolele. Ja praegusel hetkel viimane otsik on lihtsalt detail, mis pannakse sõrmuse kinnitamise augu sisse, et sõrmus ei kriimustaks ja kinnitamise koht oleks tugevam. Lisaks kolmanda otsiku peale võib kirjutada kohandatud teksti. Tulevikus võib lisada otsikute mitmekesisust.

Kolmas prototüüb rahuldab kõiki nõudeid, mis olid pandud nutisõrmusele.

SUMMARY

In the course of this Bachelor's thesis, a smart ring and its adapter were designed and manufactured. The smart ring allows users to store their files and other sensitive data on the internal storage of the ring. All data is securely stored and protected by a password. This project aimed to do the following: To make the data access easy and convenient. The motivation behind this project was to help the medical workers store the information about the in-house patients.

Firstly, the author conducted a market study investigating similar products and their features. After examining the potential competitors two key features were drowned as an area of focus. Firstly, it has to be secure and, secondly, its price has to start at a lower rate than competitors products.

Secondly, drawings were made showing the general shape of the model as well as exact dimensions that fit the author's finger. Following the design, the first 3D model was made. Unfortunately, the memory stick was a different size so the model could not get to the production stage. Then the model was adjusted for the existing memory storage device. After that, the prototype was manufactured with a Form S100 laser sinter.

To this end, a chip of a USB memory stick was glued to the smart ring body and four contacts with metal plates were welded on top of it to fit the adapter. A USB cable was inserted into the adapter, with a USB adapter at one end and metal plates at the other. Metal plates were glued to the outside of the adapter housing.

After the hardware was ready, it was time to code the software responsible for the security of the data. A secure folder was programmed into the smart ring, where all the medical data of the owner is stored.

The price was based on the cost of the details, the desired income and VAT. Then it follows that the cost of this smart ring could start at 15.55 euro.

In the course of the work, it was found that the author did not have the necessary tools to make the smart ring tidy and smart-looking. However, once it gets to the mass production stage this will not cause any issues.

The work revealed that the second prototype came out differently than intended. It was not comfortable, safe and the design was not acceptable. That is why it was decided to make a ring with a completely different system, which is even cheaper, comfortable to use, more safe, functional and beautiful

In the third prototype, an NFC sensor was used instead of a memory chip, which had less information storage capacity, but this does not cause inconvenience to the text because the text does not take up much space.

As there is already a standard ring with an NFC sensor on the market, it was decided to add nozzles with different functions. The first cap is a regular bottle opener, which is not very comfortable to wear, but attracts a lot of attention to the ring, which is a good advertisement. The second nozzle is a friends' nozzle that pulls another ring with the same nozzle. It is a good gift for a friend or your beloved. And at the moment the last nozzle is just a detail that is inserted into the hole so that the ring does not scratch and the attachment point is stronger. In addition, custom text can be written. A variety of nozzles may be added in the future.

The third prototype satisfies all the requirements for a smart ring.