

KOKKUVÕTE

Ettevõtte AS Proflin küsis abi TalTech ülikoolilt, et koostööna tuua turule uus toode. Toode ühendab kuulipilduri läbi laskemoona juhtiva moonarenni seljaskantava moonakotiga. Ülikool ühines projektiga, kui juba oli välja aretatud moonakott ja hakati aretama disaini moonarennile, mis nende sõnul ebaõnnestus, sest nendel endil puudus pädevus luua keerukaid 3D mudeleid ja polnud ka sobivaid tootmisvõimalusi prototüüpidele.

Süsteemist oli puudu moonarenni lahendus koos relva ja moonakoti külge kinnituvate adapteritega. Kuigi turul on juba saadaval sarnased lahendused, siis üks põhikriteeriumitest kogu disaini puhul on madal hind. Seda enam, et esimesteks klientideks on Eesti Kaistevägi ja Eesti Kaitseliit, tuleks hinna madalal hoidmise juures meeles pidada, et kvaliteet ei tohiks sellest kannatada.

Esmalt kaardistati üles kliendi täpsemad soovid, toote vajalikkuse, uuriti olemasolevaid lahendusi ning pisut ka toote ajaloo. Tootel on väga vähe negatiivseid aspekte, mistõttu hind võiks olla ainuke takistus seda mitte kasutada.

Toote projekteerimisel mõõdeti parameetrid, mis tulenevad moonalintidest, mis mööda moonarenni liikuma peavad. Kuna esialgse plaani kohaselt soovis klient kasutada kahte erinevat moonalinti, millest ühe liikumisomadused on teised palju kehvemad, siis esialgsed otsused disainimesel lähtusid sellest, et süsteemi saaks kasutada mõlema lindiga.

Prototüüpe on töö käigus tehtud mitmeid ning sai koostöös TalTech laboriga 3D prinditud polüamiidist. Esimest disaini, mida välja prinditi, täisutati enne kui seda kliendile näidati. Selgus aga, et lahendus ei sobi, kuna moonarenni liikumine on liialt piiratud ning klient soovib paindlikumat lahendust. Kokkuleppeliselt otsustati uue disaini kasuks, mis aga tähendab ka, et vaid ühte kahest moonalindist on võimalik kasutada piirasendites.

Käesoleva töö raames viimane disain valmis üsna kiiresti, kuna projekti raames õpitu ja eelnevad prototüüpidega tehtud vigadest oli palju kasu. Kui eelnevate prototüüpide puhul on toodetud vaid väike osa kogu moonarennist, siis uue disainiga prinditi ka ülejäänud osa koos adapteritega. Kogu süsteemi estileti kliendile ning nendepoole arvamus oli ääretult positiivne. Viimasest kokkusaamisest saadik jäeti prototüüp kogu lahendusest kliendi kätte, et nad saaksid seda enda tingimistes katsetada.

Lõputöö raames saadud tulemused on head, sest takistusi läbides saadi asendamatu infot, mis aitab kaasa lõpliku disaini valimisel ning selle heakskiidul.

SUMMARY

Estonian company AS Proflin have asked TalTech University for help to bring a new product to the market. The product connects a machine gun to the ammo backpack with a ammo chute. The university joined the project when the backpack had already been developed and a design for a ammo chute had begun. Their design did not get far because they lacked the skills to create complex 3D models and did not have suitable production facilities for prototypes.

The system lacked solution to the ammo chute with adapters attached to the gun and the bag. Although similar solutions were available on the market, one of the main criteria for the whole design is low price. Especially as the first customers are to be Eesti kaitsevägi (the Estonian Defense Forces) and Eesti kaitsealiit (the Estonian Defense League), the low price should not affect quality.

First, the customer's more specific wishes were mapped and existing solutions were investigated. Since this product has very few negative aspects to it, the only obstacle not to use this would be high price.

Before designing process started, the parameters from the ammo belts were measured. According to the original plan, the customer wanted to use two different ammo belts, one of which has much less freedom in movement properties. Initial decisions of the design were based on the fact that the system could be used with both ammo belts.

Several prototypes have been made and these were 3D printed in cooperation with TalTech laboratory out of polyamide. The first design that was printed was improved twice before it was shown to the customer. However, it turned out that the solution is not suitable, because the movement is too limited. Customer preferred a more flexible solution, therefore, it was decided in favor of the new design, which also means that only one of the two ammo belts could be used.

The final design within this thesis was completed fairly quickly. It was done with the knowledge learned during the project and from errors made in previous prototypes. While the previous prototypes were produced in just small portion of the whole ammo chute, then with the new design tested, a full size ammo chute with the adapters were produced aswell. The whole system was shown to the client and their opinion was overwhelmingly positive. Since the last meeting with customer, the prototype has been left in their hands for testing.

The results obtained in the thesis are good, because the bumps along the way provided irreplaceable information, which helps to select the final design and makes its approval more informed decision.