PUBLIC SUMMARY

Procs are foot protectors made by Thomas de Windt. Procs are beneficial for diabetic patients as they prevent the recurrence of foot ulcers as well as deterioration of the feet like a dropped foot arch and hammertoes, both common complications of diabetic neuropathy. Procs are made of silicone and are tailored to the patient's feet to essentially redistribute pressure and remove shifting on the skin. Procs have proven to be effective and are beneficial in that they allow diabetic patients to live a normal life, unhindered by unhealthy feet. The downside is that the production, currently, is very time and labor-intensive. This assignment aims to create a foothold for further development of Procs by researching scanning, AM methods, and synthesizing design options.

First, an analysis was done to provide insight into Procs, as documentation for Procs was limited.

Subsequently, this report shows a solution for a revamped production method involving scanning and additive manufacturing.

Scanning with hand-held scanners like the 3DiPad from Paromed is shown to be an effective method to accurately obtain a foot's geometry.

From an analysis of production methods, it was concluded that SLA printing with silicone would be suitable in the future as current SLA printing is very expensive.

This report contains a 'synthesis' of various aspects of a new design for Procs. This synthesis consists of:

A step towards a design for the geometry in Procs, as with AM methods the functionality relies on geometry instead of material choice.

Documentation of the creation of a model for a prototype.

Based on the prototype creation, a proposal for a method to create Procs was made

A list of improvement suggestions to be explored in the future

Because of time constraints, the prototype could only be printed after the due date for this report and thus a reflection is not present in this report. However, at the presentation, the information gathered from reviewing the prototype can be presented.