# An Evolution of Potential Advances in Limb Immobilization for Orthopedic Healing

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This project is a continuation of last year. The changes made include new testing and new cast designs. This year compression testing was done on the casts. To test this a force plate was used to measure the data. The casts were compressed until failure. Data was recorded and put into graphs. Another change made was to the cast themselves. They were redesigned completely to fit around a real hand. The hand was printed and the casts were designed around the hand. So now instead of the casts just being cylinders in shape they are now fitted around a hand to demonstrate how they would work in real life. The 3D cast can now be designed as well. Without taking away from the strength of the cast a design can be added to it. Whether it be a color, shape, pattern, or logo. This provides a wide appeal and allows for the casts to feel more like it’s for you. It also makes wearing the cast feel like less of a burden. Programming allows for people to visualize technology that could be applied if 3D printed casts were used in real life. These additions just solidify the point that 3D printed casts are an excellent option compared to plaster casts. They are stronger, more durable, extremely water resistant, lighter than the plaster casts, can be personalized, and are biodegradable. There are numerous benefits to 3D printed casts and this is only the tip of the iceberg.

**Awards Won:**