

Touch Bionics i-Limb Prostheses

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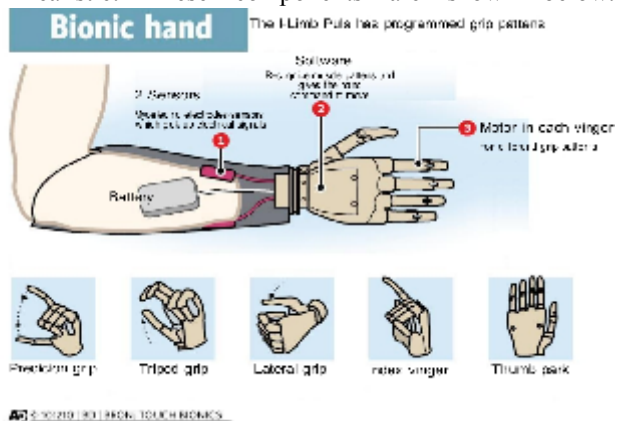
Abstract— This paper is about the i-Limb Ultra by Touch Bionics, it will include the components of the prosthetic, results, and its impact in the medical field.

I. INTRODUCTION

THE i-Limb Ultra by Touch Bionics is a prosthetic hand that is innovative and said to be “the most versatile prosthetic hand available” (Touch Bionics). This prosthetic hand is available to any amputee who desires a prosthetic hand that can function as a real hand opening and closing to allow them to have a hand to assist them. The i-Limb Ultra is based off of the i-Limb Pulse design which was a prosthetic hand previously made by Touch Bionics. This prosthetic hand shows how innovative the medical world is and greatly proves that the medical world is continuously changing.

II. HOW IT WORKS

Touch Bionics’s i-Limb Ultra is composed of fingers that each move independently, meaning they are individually powered and each have a separate motor physically moving them. The i-Limb Ultra is controlled by the user thinking of opening or closing their hand which fires certain muscles. This firing of the muscles generates an electrical impulse. This electrical impulse is picked up by the sensor, an electrode that is mounted on the residual limb, and sent to the computer on the prosthetic limb. The hand will open or close based on the muscles that are fired which generate certain impulses. Then the fingers are opened and closed by the computer but the thumb does require some manual propositioning based on which grip or task the user desires to perform. The fingers also bend at the natural joints making the prosthetic even more realistic. These components are shown below.



III. RESULTS

This i-Limb Ultra is an innovative prosthetic, it allows its user to have their hand back. This provides the user to do their daily activities as if they had two hands. The

prosthetic’s individually moving fingers allow for a better grip which is helpful for the user. While it gives the user another hand, this has also been said to help the mentally, or psychologically, a lot more. The i-Limb Ultra can be costly, \$18,000 per prosthetic, and is also not fully giving the amputee their hand back. Also it can require some repositioning and therefore is not the perfect prosthetic hand. Touch Bionics has created a great prosthetic hand but will continue to innovate.



IV. DISCUSSION

The i-Limb Ultra is a very reliable and innovative prosthetic. Although it is very helpful for the amputee there can still be problems with the thumb having to be manually moved which can be seen as not fully giving the user a hand back. This prosthetic is very helpful though because it gives the user an assisting hand which helps them in more than one way as said above. The design can be taken even further by Touch Bionics which I personally believe they will do. This prosthetic hand can help many amputee’s in society today and shows that the medical world is always changing and will continue to change and innovate with no stopping point.

References

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