Robotic Hand That Senses Touch (w/ Video)

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The Smart Hand allows its user to feel what it senses, allowing for precise control.

(PhysOrg.com) -- Developed by researchers at Lund University in Sweden and Scuola Superiore Sant'Anna in Italy, the Smart Hand project has given patient, Robin af Ekenstam (see video) the sense of touch in his new prosthesis hand.

The Smart Hand is an intricate prosthesis that incorporates four motors and forty sensors designed to provide practical motion and senses to the person using it. This is the first device of its kind that sends signals back to the brain, allowing the user to have feelings in their fingers and hand.

The Smart Hand takes advantage of the phantom limb syndrome which is the sensation amputees have that their missing body part is still attached.

(Video Credit: BBC News)

By using the impulses from the brain that travel down the neurons to the site of amputation, scientists can use these signals and direct them to a mechanical device. This makes Smart Hand unique because it takes advantage of the phantom limb pathways that are available. By connecting sensors in the hand to the nerve endings in the stump of the arm, patients can feel and control the Smart Hand.

The Smart Hand project is far from creating a limb that functions as a normal hand since there are millions of nerves in a biological hand. The Smart Hand prototype represents more than 10 years of dedication and team work. Contributors from other countries include researchers in Denmark, Israel, Ireland, and Iceland.

Considering it has taken 10 years of hard work to come this far, it will take much less time to make large improvements. Whether improvements are made in the Smart Hand Project or other projects, we can expect to see substantial improvement in prosthetic work within a short amount of time.

One day those suffering from missing limbs may be able to recover at a rate beyond their expectation. Within the next decade, prostheses may be able to feel as natural as our biological part.