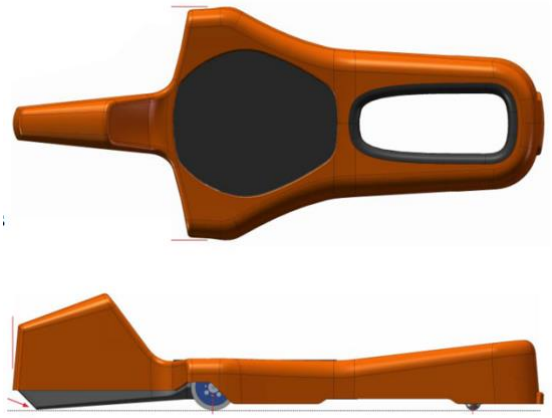
Engineering and Physical Science

VCU Innovation Gateway
Office of Research and Innovation

SIPPC: Self-Initiated Prone Progressive Crawler

Self-generated mobility via locomotion is a key for the cognitive, social and motor development of young infants. Children with disabilities such as cerebral palsy, Down's syndrome, or Spina-Bifida do not usually explore their environment like typically developing children.

The technology



The Self-Initiated Prone Progressive Crawler (SIPPC) facilitates crawling in infants who are unable to perform the act of locomotion independently. It senses the infant's intent and provides gentle encouragement to assist the movement using a controller, motors, and input transducers.

Mobility mode: If the SIPPC detects any motion in any direction, it will continue to move in that direction for three seconds, providing motivation for the baby to make the SIPPC move again.

Force (Kinetic) mode: A force plate on the SIPPC that the baby lies on measures shifts in weight, determines which direction the baby wants to move and moves in that direction.

Safety has been addressed on several levels including padded top surface, head support, and infrared proximity detectors to eliminate contact between the device and vertical surfaces. Additionally the motors and controllers are designed to limit propulsion speeds via both software and hardware limit switches. Propulsion distance is also limited following an activation event.

Benefits

- Collects data from infant, assists in facilitating their intended movement
- Adapts to changes in intended movement
- Records progress in motor development over time
- Safety has been addressed through hardware and software limits

Applications

- Adaptive technology to assist in prone locomotion of infants
- Mobility aid for children with CP, Down's syndrome, or Spine-Bifida
- Can also be used for normally developing children
- Encourages motor development and environment exploration

Patent status:
Patent Issued: U.S. rights are available. 8,942,874

License status:
This technology is available for licensing to industry for further development and commercialization.

Category:
Engineering and Physical Science

VCU Tech #:
10-027

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Prototype is fully developed and tested

Additional Details

Helping babies crawl: The SIPPC

Contact us about this technology

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