A haptic system for providing a gait cadence to a patient

UNIVERSITÀ DI SIENA 1240

INVENTORS: Domenico Prattichizzo
Marco Aggravi
Simone Rossi
Mostafa Mohammadi
David Cioncoloni
Tommaso Lisini Baldi

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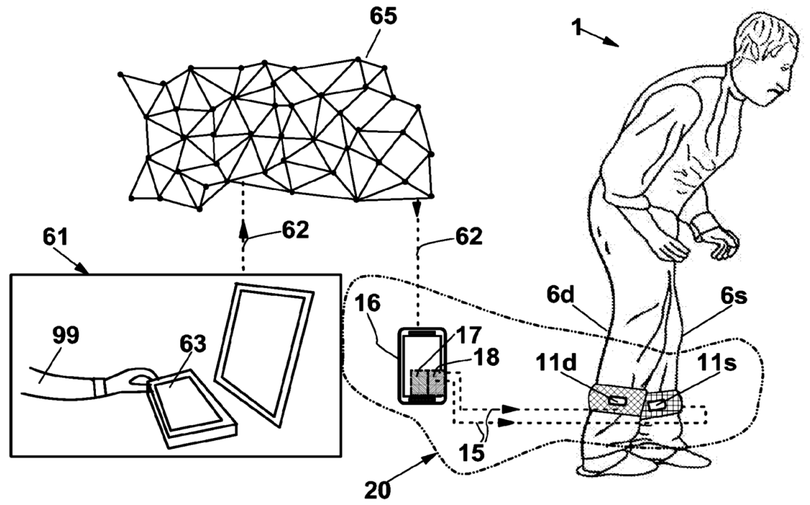
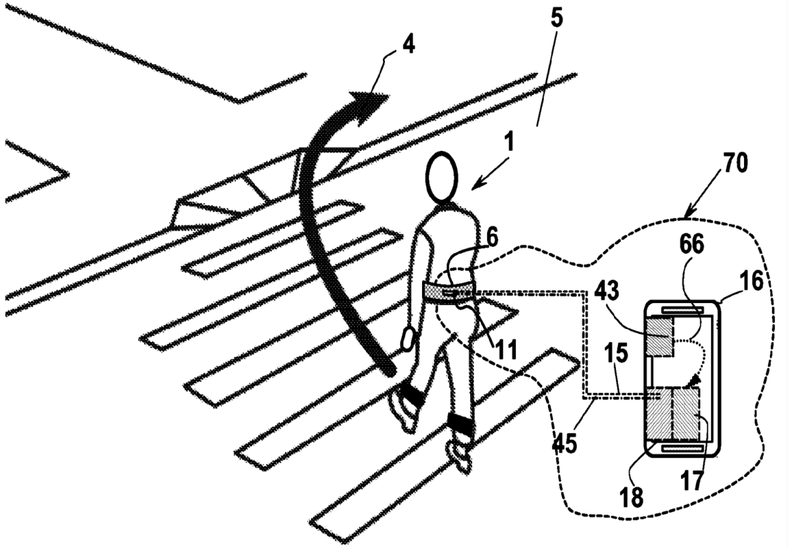
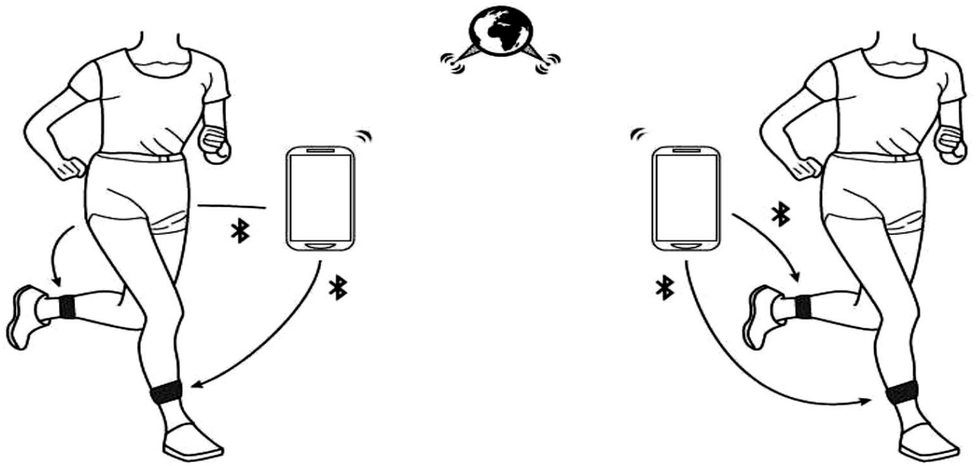
Invention

The invention is a haptic system consisting of a vibrotactile device or a pair of devices, configured to be worn on the body. In detail, the system consists of devices equipped with vibrating motors; a drive unit, configured to receive wireless control signals and vibrate the motors based on these signals; a portable telecommunication device, having a control unit capable of transmitting command signals to the drive unit and causing timed drive pulses to the motors, in order to transmit vibrotactile stimuli to the person to which the rhythm of one's steps can be adapted. The devices are equipped with an accelerometer, to provide wireless accelerometric signals to the telecommunication device, through the drive unit, in order to modify the drive pulses based on the accelerometric signals received. Wearable and portable, the device allows you to guide the cadence of steps in a comfortable way through vibrotactile stimuli with adjustable vibrations according to the needs of each user. The system can suggest the speed of the pace, to avoid collision with a moving object or to synchronize the pace with that of another person, and signal the need to change direction, to reach a specific destination.

Drawings & pictures







Industrial applications

The invention may be applied to the Health and Life Sciences field as a medical device for rehabilitation in asymmetrically or irregularly ambulatory patients, or for monitoring and guiding visually impaired or blind people. It can also be used in the field of ICT and photonics (ICT applications and services for industry and technology transfer - cloud computing, business intelligence, smart manufacturing) or in robotics within human-robot collaboration, as well as for activities of "social running".

Possible developments

The prototype is currently undergoing technological maturation, at the end of which the patent title will be available under license or option to potentially interested companies operating in relevant application fields.

For more information:

Tech Transfer Office of Università degli Studi di Siena

Headquarters: via Banchi di Sotto 55, 53100 Siena ITALIA

Web site : https://www.unisi.it/

E-mail: brevetti@unisi.it

For more information:

Ufficio Regionale di Trasferimento Tecnologico

Headquarters: Via Luigi Carlo Farini, 8 50121 Firenze (FI)

E-mail: urtt@regione.toscana.it

UNIVERSITÀ DI SIENA 1240

REGIONE TOSCANA

urtt Ufficio Regionale di Trasferimento Tecnologico