

Gesture and Rhythm User Input Using A Standard Keyboard

06/06/2025



Gesture and Rhythm User Input Using A Standard Keyboard

Electrical and Computer Engineering

Abstract

This rhythm and gesture keyboard provides an accessible and convenient method of password entry that strengthens security and requires no new hardware.

Problem

Keyboards require fine motor skills that prove difficult for many people. Computers often require a password which limits those with dexterity impairments.

Solution

This technology aims to allow those with hindered finger mobility to input passwords and access their computer

by using the keyboard to detect different gestures and rhythms.

Value Proposition

This technology enables authentication in special circumstances without new hardware. Accessibility and convenience are improved while amplifying security, and changes are only made to the software.

Benefit

Detailed hand movements required to input passwords and other security measures are difficult for many: soldiers and others who must wear gloves not easily removed often make mistakes, and those with disabilities or impaired finger dexterity may struggle inputting a password as well. This technology aims to use gestures rather than typing long strings of numbers and/or letters as passwords for computer security. Gestures are easier for those with dexterity or other complications to execute. Gestures are also harder to hack, making the password stronger and increasing security. This technology would require no change to the hardware; any standard computer keyboard may be used. All adjustments would be implemented in the software.

Using gestures allows those with impaired dexterity, due to disability or clothing constrictions, easier access to computers. In addition, the technology allows any computer user to augment passwords with gestures that would be difficult or impossible for an adversary to guess. The movements are customizable, further improving security. This invention makes these benefits possible with no changes to the hardware, allowing any computer keyboard to be used.

Market Application

This technology may be applied in the computer security market as a technology to improve password accessibility for impaired individuals as well as increase total security of the password.

Inventors

Jacob Gunther, Ph.D.

USU Reference No. C25009

Intellectual Property

Pending U.S. Provisional Patent Application