Pedal for controlling musical instruments

Development status

Phase 2

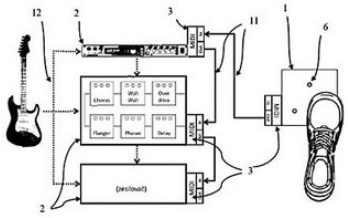
Feasibility study. There is a realistic design of the technology and the initial tests in the laboratory are leading to the specification of the technology requirements and its capabilities.

IP protection status

CZ Patent nr. 309832. Utility pattern nr. 37010

Partnering strategy

Co-development, Collaboration, licensing



Institution

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Challenge

The so-called MIDI protocol is used to connect electronic devices to each other. For our solution, these devices include musical instruments used by musicians, sound modules, amplifiers with built-in MIDI support, preamplifiers, synthesizers, musical instruments equipped with electronics and others. The so-called instructions that the MIDI protocol transmits can be: switching to a different sound, changing the volume, changing the length of the reverberation time, information about the pressed key on the keyboard etc. The purpose of pedals for controlling musical instruments with the feet is to keep the musician's hands free and play continuously. Pedals for controlling musical instruments usually have several mechanical switches, ergonomically arranged for pressing them with the foot. The disadvantages of today's pedals are: - the switches protrude above the pedal body; - they have an insufficient number of sounds; - in the case of a large number of sounds, the pedal is large.

Description

The essence of our solution is that the switches of the music pedal are made of optical sensors. The optical sensors do not protrude above the pedal in any way and it is much easier to move the foot between them, including stepping on multiple switches at once. In addition, the invented pedal is smaller than known alternatives with mechanical switches, it is also lighter and optical sensors are more reliable in terms of long-term use compared to mechanical switches precisely due to the absence of mechanical components. In order for the optical sensors not to react to all stimuli, especially to unintentional ones, e.g. short-term covering with the foot when stepping between switches, etc., it is ensured that the invention includes a control means for confirming the switching on of the optical sensors. The invention also includes a control unit, which is signal-connected to the control means, from which filtered signals of intentional stepping on the sensors arrive. An equally important component is the MIDI converter, which is signal-connected to the control unit for converting status instructions from the control unit to a MIDI signal, while the MIDI converter is communicatively connected to the MIDI connector. The term “status

instructions” means that the degree of coverage of the optical sensors (one or a combination of several optical sensors simultaneously) is evaluated and converted into a corresponding command. Our solution can switch multiple optical sensors at once. This means a greater number of sounds with fewer switches than in a classic mechanical design. This again leads to the advantage that the invented pedal is smaller and lighter. This advantage is completely unique among known MIDI pedals. The pedal's tread surface is movable in the direction towards the floor. The pedal is equipped with a tread surface sensor, which forms part of the control means for confirming the switching of the optical sensors. The pedal processes information from the optical sensors only after the tread surface of the pedal is stepped on. Additionally, it is advantageous that many musicians are accustomed to the feeling of pushing the switch towards the floor from mechanical switches.

Commercial opportunity

A pedal for controlling musical instruments is meant to be used in music production.