

## SUMMARY

The result of this work is an upgraded pedal prototype that is now able to send and receive MIDI control change messages over USB.

Received messages can be used to modulate any control knob or a bypass switch on the pedal. In order to modulate the controls messages have to be sent through certain MIDI CC. Different CCs are reserved for different controls. Messages other than control change or those sent through different MIDI CCs than the reserved ones are ignored by the pedal.

Proper response in case the user manually triggers the bypass switch while it is under control of MIDI was implemented. If pressed it reacts accordingly but once new MIDI value is received it returns back under MIDI control.

Proper response in case the user manually triggers any other control knob was left out of the scope of this thesis. Similar algorithm to the one with the bypass switch was considered to be too confusing for a user. As a possible option an idea to add a new footswitch to new pedal prototype that would allow to switch between different control modes was suggested.

Any control on the pedal except bypass switch can send MIDI messages outside the pedal. A specific algorithm was implemented in order to make each knob send messages only if its position is being changed. This was needed to make a MIDI map function work properly. Essentially pedal can as well be used as a MIDI controller with 6 knobs.

All the implemented functions were regularly tested and further on corrected if needed. The last tests did not reveal any problems.

Some possible applications of the implemented functions were overviewed in this document. Possible further improvements were mentioned as well.