Audio Calibration Tool Development for JOT G3 Final Tester
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The object of this Master’s thesis was to develop audio calibration tools, both hardware and software for JOT G3 Final Tester robot acoustic interfaces. The main target was to calibrate speaker frequency response to be able to produce flat frequency response. JOT Automation is one of the leading test automation solution providers companies in Finland, acts on four different continents. JOT G3 Final tester is an all-in-one test handler used for the production testing of final assembled hand held devices. This work was done between spring 2014 and 2015 at JOT Automation R&D office in Oulu.

The work included specifying the needed features for hardware and software. A flow chart was created for describing the interaction between the operator, calibration hardware and software. The extra challenge was to develop a tool that could be used without a graphical user interface.

As a result of this thesis, an audio calibration product specific part (test adapter) was designed to the JOT G3 Final Tester. PSP integrates a high precision microphone and sound source, an internal data acquisition card together with a PSP printed circuit board, developed during the thesis to the G3 Final Tester. The calibration software uses PSP PCB indication LEDs and pneumatic actuators to guide the operator during the calibration process. The calibration SW controls a DAQ card during measurements and stores the needed compensation values. An additional graphical user interface is
The Calibration Tester checks for the following two aspects of your display system:

- Checks if your system supports adjustable gamma curves. This is a necessary condition for doing an automatic monitor calibration. If the preceding test result was positive, checks if the gamma curves in your system have been modified. That is, if they differ from straight lines connecting the points (0,0) and (1,1). If they are unmodified, certainly no monitor calibration performed by Logo's monitor calibrator is active. If they have been modified, perhaps a monitor calibration made by Logo's monitor calibrator is provided to visualize measurement results and guide the operator but, it is not mandatory for the calibration execution.

Preliminary results from the frequency response calibration are available. Hardware changes during thesis work prevented the execution of the final measurements. A verification plan and future development ideas are listed in their own chapter.