

## HÖHERE TECHNISCHE BUNDESLEHRANSTALT ST. PÖLTEN COLLEGE of ENGINEERING

Department: Educational focus:

Elektronische und Technische Informatik Wireless- & Embedded Systems

## DIPLOMA THESIS DOCUMENTATION

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Form Academic year	5BHELS / 2016/17
Topic	Active Bluetooth-Speaker
Co-operation Partners	-
Assignment of Tasks	A 2.1 speaker system should be developed. The input signal comes either from a Bluetooth connection or a phone connector. The circuits for the amplifiers and the audio crossovers are developed by us, except for the subwoofer amplifier. The system is portable due to an integrated accumulator, which is charged by a switched-mode power supply. With the external power supply, a higher power level should be possible.  The volumes of the cases should be adapted to the speakers.
Realisation	The amplifiers are realised with the Hi-Fi-Amplifier TDA2030. Various circuits including additional transistors or a bridge-circuit are used. The audio crossovers include active Butterworth-Filters of the 2 <sup>nd</sup> order, implemented with operational amplifiers.  The supply of the amplifiers can be switched with a relay from the accumulator to the switched-mode power supply.  Both inputs are added to one signal with an adding circuit.  To find the optimal volumes for the speakers, several measurements must be made.

## Results Functioning components: • Amplifier and audio crossover circuits • Supply, including the switched-mode power supply • Bluetooth and phone connector inputs • Speaker boxes for subwoofer and satellite speakers (Tweeters & Woofers)



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