

# AUFGABE DER PROJEKTARBEIT

im Studiengang „Elektro- und Informationstechnik“

für: ***Verfügbar***  
gestellt von: **Prof. Dr.-Ing. Andreas Czulwik**  
Thema: Design of an Automatic Gain Control for USRP Radios

Universal software radio peripheral (USRP) is a software defined radio (SDR) which can be used in several applications with a wide frequency range (e.g. 50 - 2200 MHz using WBX daughter board). A good way to improve the performance of the USRP/WBX receiver is to regulate the received signal strength where the incoming signal shall be amplified to achieve the minimum required SNR when the incoming signal is weak. Moreover, the incoming signal shall be reduced when the incoming signal is too high.

Automatic gain control (AGC) was introduced as a closed feedback solution to overcome the above mentioned problem. This project is aiming to design an AGC for USRP/WBX to allow the receiver to operate with a wider range of received signal strength.

The task entails the following:

- Creating a time and work plan,
- design an AGC circuit for USRP/WBX,
- design a PCB layout using EAGLE for the AGC circuit,
- assembling the circuit at the PCB workshop,
- perform all required tests and measurements,
- documentation of the work,
- final presentation of the work, and
- submitting a digital copy of documentation and presentation in PDF format.

Duisburg, \_\_\_\_\_

Betreuer: \_\_\_\_\_

Prof. Dr.-Ing. A. Czulwik