



PAHMIR



Hochschule für Angewandte Wissenschaften Hamburg
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DEPARTMENT FAHRZEUGTECHNIK UND FLUGZEUGBAU

Circuit Design for Ultrasonic Location Detection Combined with RFID

Definition of a project according to examination regulations.

Background

The goal of the project PAHMIR (Preventive Aircraft Health Monitoring for Integrated Re-configuration) is to design a new approach for location detection and failure detection. Both tasks need a hardware platform to perform calculations, sensing and communication. The location detection shall be implemented as a prototype system to evaluate the accuracy and to perform calibration of the algorithms. A hardware platform with limited functionality is needed to be able to build a prototype.

Task

The task is to design a circuit for the location detection prototype. Specifically the “tags” should be designed. All components should be COTS (Commercial Off-The-Shelf). The hardware platform should be compliant to the requirements of the hybrid location detection concepts of PAHMIR. This includes an ultrasonic and RFID transmitter, memory and a small microprocessor.

The specific tasks are:

- Evaluate state of the art location detection concepts with RFID and ultrasonic signals.
- Choose hardware components (processors, transmitter, ..) for a prototype.
- Draw a circuit design with chosen hardware components.
- Built a prototype system.

The report has to be written in English based on German or international standards on report writing.