

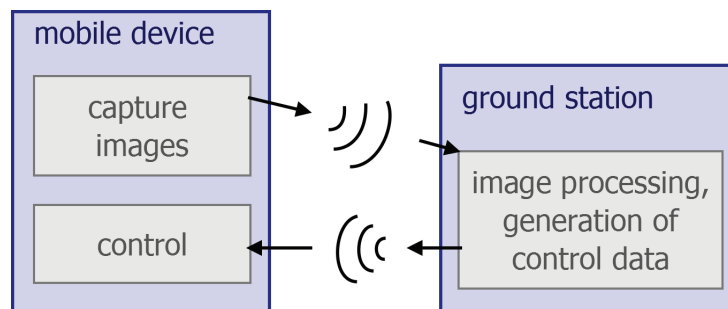


## Development of a wireless transmission system for image processing in mobile robotics

In recent years the increasing performance of embedded-hardware and algorithms provided the basis for autonomous control of mobile robotic systems. However, to date there are no energy-efficient systems available which provide enough performance for image processing algorithms.

As an alternative to specialized hardware, which could realize the image processing on the mobile device, a transmission system has to be built that sends the image data to a high-performance ground station in order to run the image processing tasks.

Therefore existing systems were examined but no one matched the demands of the transmission system. For this reason, a custom implementation using the videocodec H.264 and the WiFi standard was developed. Most of the available embedded boards used in mobile robotics are running the Linux operating system. Hence the open-source framework GStreamer known from the Linux community was chosen to realize the system.



The result of this work is a working transmission system which transfers images and other data from the mobile device to a ground station that runs the image processing algorithms and sends the generated control data back.

---

Tutor: Dipl.-Ing. Martin Seemann  
Dipl.-Ing. M. Tkocz  
Supervisor: Prof. Dr. techn. Klaus Janschek  
Day of Submission: 02.03.2012

---