

## Bachelor Thesis/Research Project

# Display of an Embedded Camera Video Stream with Adaptive Resolution and Frame Rate

## Description

One of the research topics at the Professorship DST is computer vision. In that field are many topics for a thesis possible. In this one the video of an embedded camera is supposed to be displayed on the screen. To take it further the video should be adaptable in resolution and frame rate. This should be done with an real time operating system (RTOS). In addition the video stream should be transmitted via Ethernet.



### The student's work should at least cover the following steps:

- Setting up an operating system
- Getting the camera and display started
- Display the video on the screen
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### Further detail that should be covered:

- Literature research
- Display the video with different frame rates and resolution
- Transmit the video stream through Ethernet to another display

## Recommended experience

- Understanding of communication or embedded systems ( STM32)
- Basic understanding of video processing
- Eventually real time operating systems (e.g. FreeRTOS)
- C/C++

## Literature

Tanenbaum, A. S. (2015). *Modern Operating Systems*. Boston House

Augustin, Aloÿs, et al. *A study of LoRa: Long range & low power networks for the internet of things*. *Sensors* 16.9 (2016): 1466.

Ferré, Guillaume, and Audrey Giremus. *Lora physical layer principle and performance analysis*. *2018 25th IEEE International Conference on Electronics, Circuits and Systems (ICECS)*. IEEE, 2018.

Hammi, Badis, et al. *IoT technologies for smart cities*. *IET Networks* 7.1 (2017): 1-13