TECHNISCHE UNIVERSITÄT
CHEMNITZ

Development of Streaming Solution for Live-Video from Mobile Robot

Automotive Software Engineering Research Internship

(Additional Report)

Fakultät ET/IT
Professur Prozessautomatisierung
Masters Automotive Software Engineering(Informatik)

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1. GStreamer Pipelines for Video Streaming

1.1 On the PC we execute:

gst-launch-1.0 -v rtpbin name=rtpbin udpsrc caps='application/x-rtp, media=(string)video, clock-rate=(int)90000, encoding-name=(string)H264' port=9000 buffer-size=20000000 ! tee name=split ! rtpssrcdemux ! rtpptdemux ! rtpbin.recv_rtp_sink_0 rtpbin. ! rtpjitterbuffer ! rtph264depay ! ! 'video/x-h264, width=640, height=480' ! queue ! h264parse ! avdec_h264 ! videoconvert ! timeoverlay text="Technische Universitat Chemnitz, stream-time:" shaded-background=true ! fpsdisplaysink sync=false split. ! queue ! filesink location="video.mp3"

1.2 On the Raspberry Pi:

raspivid -n -w 640 -h 480 -b 4500000 -fps 30 –hf -t 0 -o - ! gst-launch-1.0 –v rtpbin name=ratpbin fdsrc do-timestamp=true ! queue leaky=1 ! decodebin ! 'video/x-raw, width=640, height=480' ! videorate ! 'video/x-raw, framerate=30/1' ! videoconvert ! omxh264enc target-bitrate=15000000 control-rate=variable ! video/x-h264, profile=high ! h264parse ! queue ! rtph264depay ! rtpbin.send_rtp_sink_0 rtpbin.send_rtp_src_0 ! rtpssrcdemux ! udpsink host= Dest_Host_IP port=9000 sync=false

Dest_Host_IP=IP address of the PC(connected to the RPi)

Current IP Address of the RPi=192.168.42.1

If any changes are made in the above pipelines, care must be taken that the *source element* and the *sink element* are compatible with each other, else the pipeline will not execute.

2. Connecting to the RPi Network

Connecting to the network broadcasted by the RPi is simple. The RPi is already configured to broadcast a network. Once the board is connected to the power source, after a few seconds the Wifi adaptor will begin broadcasting.

Wifi name-*Pi_Wifi*

Password-*raspberry*

Once connection is established, we can ssh into the RPi by simply executing

ssh pi@192.168.42.1