



ERUDITIO
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AUTHOR: PETER OTTO; SUPERVISOR: MGR. PETER TRHAN, PHD.

Driving radio controlled model through a computer and its interaction with the outside world on the Raspberry Pi platform

THE THESIS FOCUSES ON THE DRIVING OF RADIO CONTROLLED MODEL THROUGH THE RASPBERRY PI COMPUTER. THE PAPER ALSO EXPLORES THE METHOD OF REAL-TIME VIDEO STREAMING OVER WIFI NETWORK. THIS PAPER FURTHER COMPARES METHODS OF SENDING CONTROLLING COMMANDS. GAINED KNOWLEDGE IS APPLIED IN THE IMPLEMENTATION OF APPLICATION FOR AUTONOMOUS CONTROL OF A MODEL. THE RESULT OF THIS THESIS IS A VEHICLE THAT CAN BE CONTROLLED BY COMPUTER OR BY HUMAN. THIS VEHICLE IS CAPABLE OF INTERACTION WITH THE OUTSIDE WORLD THROUGH THE INTERNET. GAINED KNOWLEDGE CAN BE USED IN MORE ADVANCED ROBOTIC PROJECTS THAT DEAL WITH ALGORITHMS OF COMPUTER VISION, MOTOR CONTROL AND VIDEO TRANSFER.

THE MAIN OBJECTIVE OF THE THESIS IS TO SOLVE A RADIO CONTROLLED CAR DRIVING THROUGH THE RASPBERRY PI COMPUTER AND TRANSFERRING VIDEO THROUGH WIFI NETWORK WITH LOW LATENCY USING THE RASPBERRY PI CAMERA. ANOTHER OBJECTIVE IS TO COMPARE SENDING METHODS FOR CONTROLLING COMMANDS THAT ARE EXECUTED THROUGH AJAX AND WEB SOCKETS TECHNOLOGIES. THE OBJECTIVE IS TO APPLY GAINED KNOWLEDGE IN DRIVING A MODEL OF THE CAR USING A PICTURE RECOGNIZED BY OPENCV LIBRARY.

KEYWORDS: RASPBERRY PI, OPENCV, SERVOBLASTER, AJAX, WEB SOCKETS.

Supported functions: ball following, line following, symbol recognition, manual control, controlling over internet, route memorization.

