

<b>Theme</b>	<b>Quality monitoring of ZigBee communication and contactless position sensing (BP2)</b>
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<b>Key Words</b>	ZigBee communication protocol, odometry, distributed mechatronic system, quality monitoring and analysis
<b>Specification</b>	Wireless communication is spread more and more in industrial automation. It offers flexible modifications of component connection or component mobility independent of fixed wires connection. It has advantage e.g. in production backup to avoid unplanned shut-downs. The aim of the theme is a monitoring and analysis of the quality of wireless communication based on ZigBee protocol and contactless position sensing as well. On the basis of the obtained results, the possible improvements of the sensing and communication have to be determined and possibly realized.
<b>Tasks</b>	<ol style="list-style-type: none"> <li>1. Study ZigBee communication protocol.</li> <li>2. Study technical solutions of contactless position sensing.</li> <li>3. Monitor and analyze quality of ZigBee communication protocol and contactless position sensing.</li> <li>4. Propose possible ways of improvement for contactless position sensing (sensors, scan surfaces etc.) and select a way with the most expected improvement effect to be realized.</li> </ol>
<b>Literature</b>	<ol style="list-style-type: none"> <li>1. ZigBee Alliance home page <a href="http://www.zigbee.org">http://www.zigbee.org</a>.</li> <li>2. Rychnovský, V.: Řídicí systém s využitím bezdrátové komunikace ZigBee, Diplomová práce, ČVUT v Praze 2011.</li> <li>3. Online Manuals: Using MATLAB, Simulink; The MathWorks, Inc. <a href="http://www.mathworks.com/">http://www.mathworks.com/</a>.</li> <li>4. Other full-text sources: <a href="http://cmp.felk.cvut.cz/~pisa/">http://cmp.felk.cvut.cz/~pisa/</a> <a href="http://as.utia.cas.cz/asc">http://as.utia.cas.cz/asc</a> - Link to GPC pages.</li> </ol>
<b>Note</b>	Theme for bachelor project or master's thesis.