Department of Intelligent Systems (DITS)   Academic year 2018/2019

Bachelor's Thesis Specification

21967

Student:	**Beneš Martin**
Programme:	Information Technology
Title:	**Counting People Using a PIR Sensor**
Category:	Signal Processing

Assignment:

1. Study the issue of PIR sensors. Familiarize yourself with the algorithms for general recognition and classification.
2. Use the acquired information to design the theoretical system, either a predefined fuzzy logic system, or an artificial learning system, that would use data from PIR sensors and scan the monitored situation, the count of present people etc.
3. Implement the above described algorithmic design. Verify its functionality on real situations.
4. Sum up the results you achieved and discuss the possibilities of application, incl. future work.

Recommended literature:

- Wang L. *Human infrared signal recognition using single PIR detector*. In: 4th International Congress on Image and Signal Processing (CISP), IEEE, 2011, s. 2664-2668, doi 10.1109/CISP.2011.6100680.
- Yun J., Lee S.S. *Human movement detection and identification using pyroelectric infrared sensors*. Sensors, 2014, 14.5: 8057-8081, doi 10.3390/s140508057.

Requirements for the first semester:

- Items 1 and 2.

Detailed formal requirements can be found at http://www.fit.vutbr.cz/info/szz/

Supervisor:	**Drahanský Martin, prof. Ing., Dipl.-Ing., Ph.D.**
Consultant:	Kempter Guido, prof., FHV
Head of Department:	Hanáček Petr, doc. Dr. Ing.
Beginning of work:	November 1, 2018
Submission deadline:	May 15, 2019
Approval date:	November 1, 2018