Summary

- Animal behaviour provides information about their health, welfare and environmental situations.
- In different climate conditions pigs adopt different lying postures.
- Visual monitoring of pig behaviours over long periods is very time consuming.
- An automated machine vision technique was applied to identify side and belly lying postures of pigs.

Methods and Materials

- The project took place at a commercial pig farm in Germany.
- Four pens with fully slatted floor (concrete and plastic) were selected.
- CCD cameras were located 2.5 meters above the ground.
- Image processing algorithms in MATLAB® were developed to find each individual pig in the pens.
- Support vector machine (SVM) were used for classification and detection of side and belly lying postures.

Results and discussion

- Each pig was extracted from binary image and boundaries and convex hull of each animal were found.
- Boundaries and convex hull value were used for training of the SVM classifier.
- The trained SVM was used for detection of pigs.

Conclusion

- Knowledge of the lying posture of each pig in the pen during lying time can be used to assess ambient conditions and improve animal welfare.
- This research illustrates the application of an automated system that can detect exact lying postures of pigs.
- Pigs had different postures at different thermal conditions.
- Machine vision and machine learning could lead to high accuracy in pig monitoring.

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