

# Smart barn keeps an eye on chickens

Researcher Suresh Neethirajan developed the chicken monitoring system ChickTrack. Cameras, odour sensors and microphones keep an eye on the condition of each individual chicken. That helps farmers optimize feed and barn conditions.



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ChickTrack uses video cameras that record images from various corners of the barn, as well as thermal cameras, odour sensors and microphones to record the sounds the birds make. The system can track individual chickens based on tiny differences in the shape and size that humans barely notice but that can be seen by the computer. The temperature distribution across the body is an indicator of the bird's emotional state and welfare. 'We know about the chicken's temperature map. Situations that generate anxiety make the chicken's comb and throat change temperature much more quickly than the rest of the body,' says Suresh Neethirajan, an associate professor in the Adaptation Physiology chair group at Wageningen. The odour sensors measure

the chicken's metabolism. 'Depending on the feed that they get, they breathe out various mixtures of chemical compounds. In principle, we can measure that per bird. The amounts involved are tiny and so the sensors have to be incredibly sensitive to pick them up.'

The system combines all these signals to provide information on the chicken's behaviour and condition. 'The algorithm can arrive at a decision in a matter of seconds and alert the farmer,' says Neethirajan. 'The farmer can then adjust the lighting or humidity in the barn, for example, or change the feed composition. These adjustments influence the birds' behaviour or emotional state.'

Info: [suresh.neethirajan@wur.nl](mailto:suresh.neethirajan@wur.nl)