Automated Lowcost System for Farmers: Control and monitoring of the thermal environment in swine breeding

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Abstract: The present work aimed to develop an automated system of low cost to monitor and control the thermal environment of pig facilities. Through sensors connected to an Arduino micro-controller, it was possible to drive fans and/or nebulisers to maintain adequate temperature and relative humidity values, depending on the requirements of the animal. These values were established based on the enthalpy inside the shed, recommended by the consulted bibliographical references. For the correct functioning of the system, the flowchart and the corresponding implementation of the computer program in the C language were elaborated, using the development environment of the micro-controller itself. During the tests, the system activated the equipment and stored the data as expected, showing good performance. As a conclusion, the proposed

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system reduced the consumption of water and energy, proving its efficiency. This research will serve as a useful and viable tool for pig farmers contributing to the reduction of costs and the sustainability of their enterprises.

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