

Sensor Based Egg Sorting Device

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Student of Engineering Physics, Mechanical Engineering, Animal Science and Industry of Universitas Gadjah Mada created a sensor-based non-fertile egg sorting device technology to improve the efficiency of livestock production. They are Lutfi Zharif, Ahmad Sony Alfathani, Dwi Erlianto, Ike Tutwuri and Elinda Luxitawati.

The tool combines image processing techniques and artificial intelligence to recognize the condition of eggs (fertile, infertile, and rotten). Conditions of eggs can be identified only by a few clicks on the computer. The development of this tool combines infrared light and a webcam to determine the condition of the egg by the brightness level of egg's image.

Luthfi explained that how the tool works is similar to a manual candling technique, in which the human eye and brain can be replaced by a modified web cameras and computer programs. Web camera captures the image of the eggs in binoculars. The web camera can capture the visible and infrared light waves so that the image will be clearer. The eggs' characteristics in the picture are extracted according to its level of brightness and texture. The data would be incorporated in system based on trained artificial intelligence neural network.

"Output from the artificial intelligence systems are the known condition of the egg condition," he

said recently.

Ike hopes this tool can provide benefits to farmers and small businesses engaged in the business of eggs hatching. With this tool, they will be able to cut the energy and time in the candling process, which is the process of observation of the eggs to determine the condition of the egg.

"Sorting eggs can take up to 180 eggs per minute, faster than the manual method of candling eggs, which could only produce 36 per minute," she said.

Currently, the tool has been applied in the Widi Farm hatchery industry in the Sleman area of Widomartani, Yogyakarta. In the near future, the tool is expected to be applied in farming and other small industries in Indonesia in order to compete in the Asean Economic Community.

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