A Mechanical Device to Improve Powder Flow

A reusable, remotely controlled, microcontroller-actuated device prevents powder flow issues like caking and bridging more cheaply than existing bin vibration systems.

Powders amount for 80 percent of materials used in the industry. The flowability of powders is a complex problem that the industry faces. Flowability depends on the stress state of the powder and the chemical properties it is comprised of. Some of the problems with powder flowability are bridging, caking, and ratholing. Existing technologies to combat these problems include actuators and bin vibration systems. These are expensive and with use over time can ruin the bins or hoppers. There is a need for a technology that can eliminate these issues.

Researchers at Purdue University have developed a new technology that solves the caking, bridging, and ratholing that occurs in powder flow from hoppers and bins in agriculture and other industries. The technology is a microcontroller actuated portable device that can be remotely controlled. This device mixes with the bulk powder to increase flowability. This device is reusable and can save time, labor, and money. The device itself is also much cheaper than existing technologies. This device could change how the flowability of powder is handled.

Advantages:

-Prevents caking of powder

-Inexpensive

-Device can be reused

-Controlled remotely

Potential Applications:

-Powder flow

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Category

Agriculture, Nutrition, & AgTech/Ag Robotics & Automation
Robotics & Automation/Automation & Control
Chemicals & Advanced Materials/Materials Processing & Manufacturing Technologies

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