Sensing Dust Concentration Through a Mobile Application

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Categories:
- Agriculture
- Computer Technology

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- Agriculture
- Air Filtration
- Air Quality
- Algorithm
- Computer Technology
- Food Industry
- Imaging
- Industrial Safety
- Light Scattering
- Low Cost
- Manufacturing
- Mobile Apps
- Portable
- Safety

Researchers at Purdue University have developed a mobile phone application using OpenCV algorithms that detect dust concentration. Dust builds up in agricultural and manufacturing settings, causing health hazards to employees, and posing risk of exploding in combination with aerosols. Current technology for detecting dust levels is inconvenient because it is expensive, difficult to install in a workspace, and separates dust matter into multiple filters which must then be weighed and further manipulated for analysis. Sometimes laser scanners are used to detect dust particles, but these devices often report size distribution of particles rather than the actual quantity of particles in a large space. The mobile app created by Purdue University uses a smartphone camera to image and sense dust as well as accurately distinguish it from normal background noise. In testing, the algorithm successfully recognizes ninety-five percent of saw dust and ninety-three percent of cornstarch particulates in the air.

Advantages:
-High speed detection
-Portable
-Accurate

Potential Applications:

-Agriculture
-Manufacturing
-Particle Science

People:

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