

## Smartphone-Based Device for Bioluminescence Detection

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**Categories:**

- Biotechnology
- Food and Nutrition

**Keywords:**

- Biotechnology
- Environment
- Food and Nutrition
- Food Safety
- Smartphones

Smartphone cameras have uses beyond the usual photos taken for social media apps. There are potential applications in searching for biological matter in environmental surveys and on-site food safety inspections. However, for widespread usage of smartphone-based detection, there is a bottleneck of low sensitivity associated with the sensor of a standard commercial smartphone. Other methods, such as sending actual samples to a laboratory for analysis using high sensitivity detectors, delay the results and impose economic losses in cases of food inspection.

Researchers at Purdue University have developed a smartphone-based device and image processing method to maximize the sensitivity of the typical smartphone camera. The proposed hardware/software combination, named the "Bioluminescent-based Analyte Quantitation by Smartphone (BAQS)," provides a quick, on-site method for analysis of samples tagged with a bioluminescent probe. A structure houses the smartphone, sample, and collection lens, while an algorithm lowers the signal background and enhances the signal from bioluminescent photons.

**Advantages:**

- Simple & inexpensive
- Achieves large increases in detection
- On-site; no delays in sending samples to labs

**Potential applications:**

- Environmental surveying
- Food inspection

**People:**

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### **Intellectual Property:**

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