**Integrated Frequency Locked Optical Whispering Evanescent Resonator (FLOWER) Based on Raspberry Pi**

**UA ID Technology #ua19-084**

**Invention:**

Raspberry Pi is a card-sized mini-computer that acts as a data processing center that replaces the prior commercial frequency locking system. It greatly reduces the size and the weight of the FLOWER system, making it possible for the FLOWER system to be carried by people or mounted on a drone.

**Background:**

FLOWER (frequency locked optical whispering evanescent resonator) is a currently patented system (9,739,770B2) which can measure low concentrations of biological and chemical molecules down to the single molecule limit. Although FLOWER is able to sense low concentrations of molecules, it occupies a large footprint and currently fits on a 4’ x 6’ optical table in the lab. We are interested in miniaturizing FLOWER and making it light weight and portable.

**Applications:**

* An instrument to detect individual biomedical nanoparticles
* Remotes sensing capabilities

**Advantages:**

- More portable
- Higher processing capability
- Ability to connect to the internet
- Ability to share data
- Cheaper

Contact: Amy Phillips  
Sr. Licensing Manager  
amyp@tla.arizona.edu  
(520) 621-9579

The University of Arizona, Tucson, Arizona
Licensing Manager: Amy Phillips
AmyP@tla.arizona.edu
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Inventors
Gwangho Choi
Research Assistant, Optical Sciences
Shuang Hao
Research Specialist, Optical Sciences
Tsu-Te Su
Asst Research Prof, Optical Sciences