

# Point-of-Care HPV Diagnostic Refinement

## SenSIP Algorithms and Devices REU

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### ABSTRACT

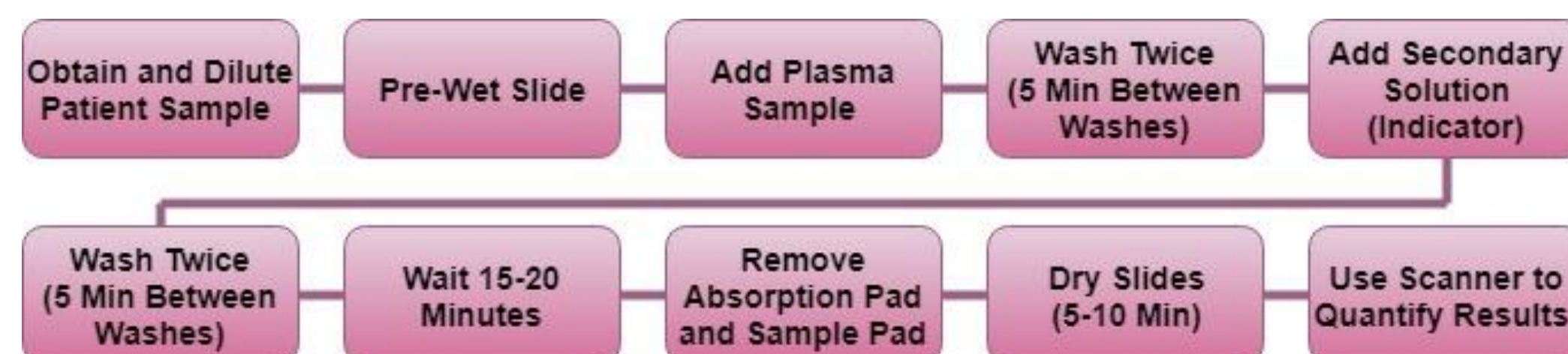
- Evaluation of different materials to produce the diagnostic assays.
- Calibration of the portable scanner to read the assays.
- Decreased time required to run the diagnostic.

### MOTIVATION

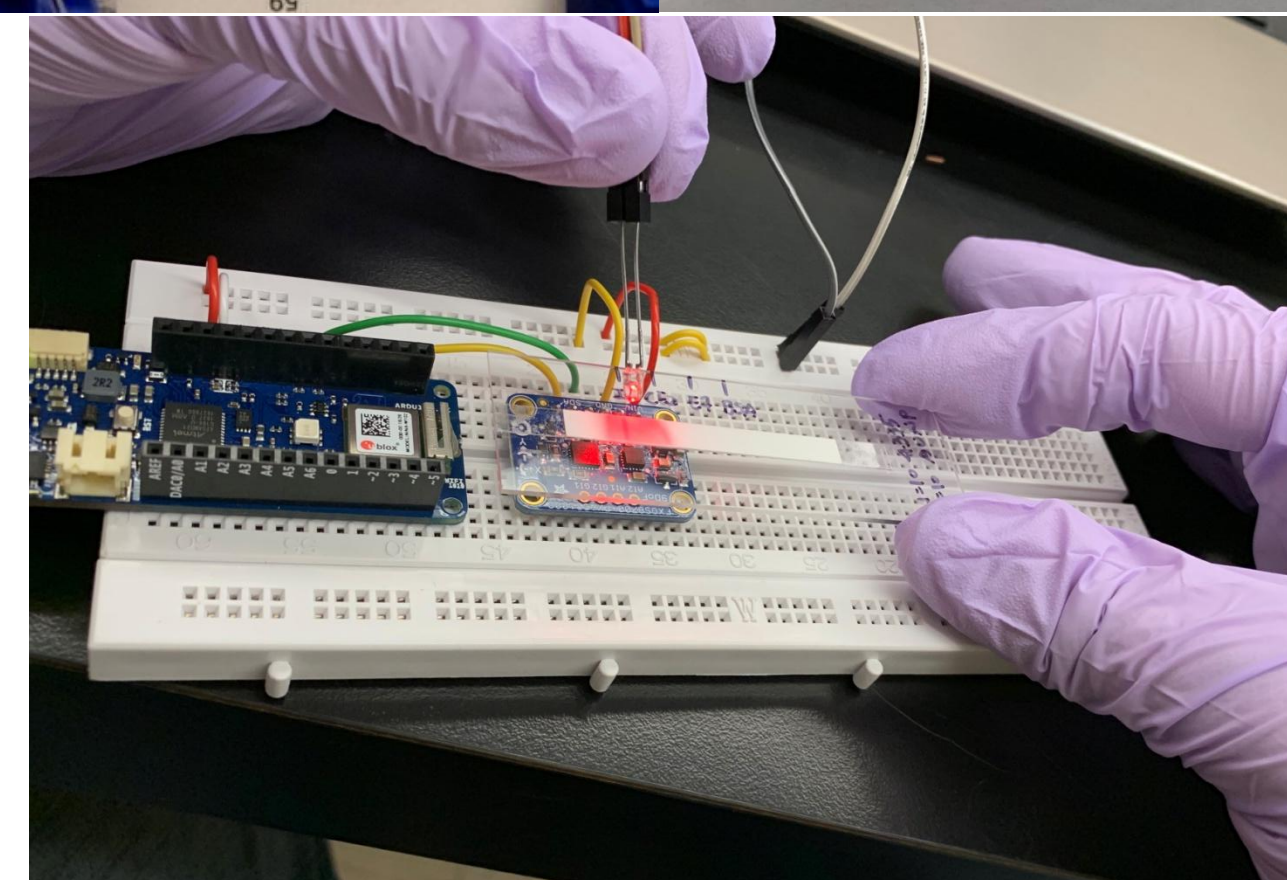
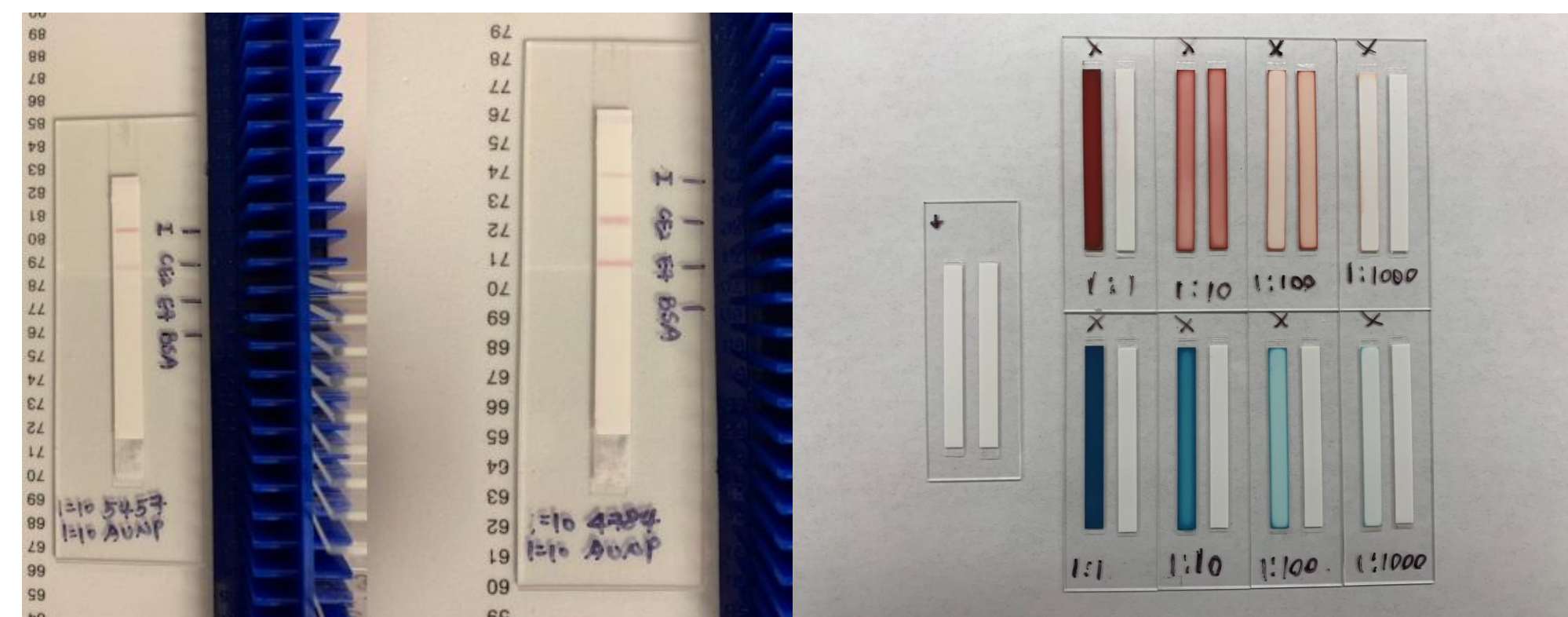
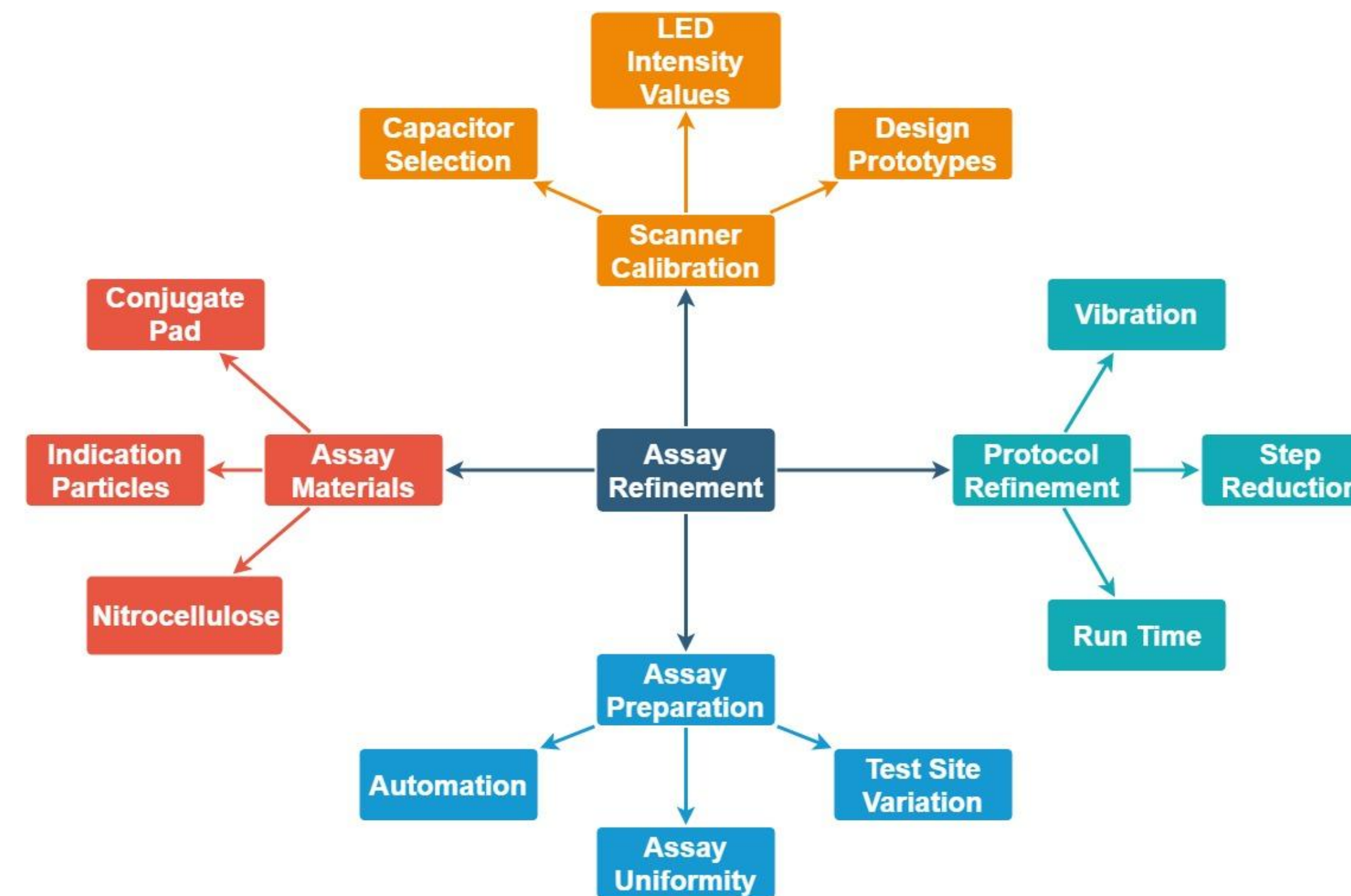
- Low resource and austere areas of the world require low cost, rugged, medical diagnostics
- HPV16 and HPV18 are very common and can lead to cancer in both men and women.
- People of every social status and socioeconomic realm deserve to know their health status.

### PROBLEM STATEMENT

- The current assays require too many steps and are too complicated to be considered Point-of-Care.

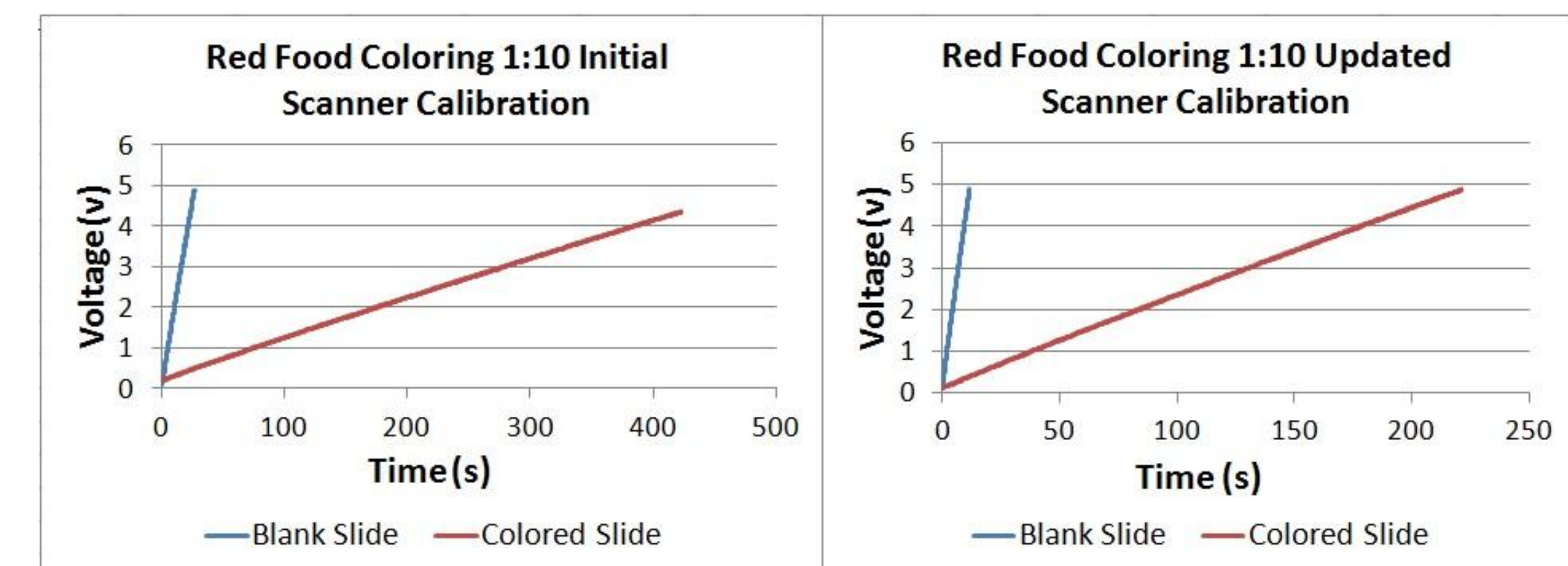


### EXPERIMENTAL METHODS: SENSORS



### PRELIMINARY RESULTS

- Point-of-Care scanner has been calibrated to run food coloring mockup slides within acceptable time parameters.
- The scanner was able to pick up differences in positive test slides compared to blanks.
- Using an Arduino controlled magnetometer I was unable to pick up any magnetic readings from the slides using gold nano-particles.



### REFERENCES

- U. Obahiagbon, "Design, Fabrication, and Characterization of a Highly Sensitive Fluorescence-based Sensor Platform for Point-of-Care Applications," dissertation, 2018.
- U. Obahiagbon, J. T. Smith, M. Zhu, B. A. Katchman, H. Arafa, K. S. Anderson, and J. M. B. Christen, "A compact, low-cost, quantitative and multiplexed fluorescence detection platform for point-of-care applications," *Biosensors and Bioelectronics*, vol. 117, pp. 153–160, 2018.

### ACKNOWLEDGEMENT

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