SCC-PG: StreetBit: A Bluetooth Beacon-based System for Alerting Distracted Pedestrians in Urban Environments

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1 GOAL

- Establish strong ties and working relationships with our community partner: **The Department of Transportation of the City of Birmingham, Alabama.**

- Identify and understand **distracted pedestrian behavior** through observational studies at multiple Birmingham, Alabama locations;

- Extend and evaluate the **StreetBit app** which triangulates signals from Bluetooth beacons placed at street corners to (1) identify precise user location, and (2) issue alerts to distracted pedestrians

2 INTRODUCTION

- In USA, more than 6,000 pedestrians were killed in traffic crashes in 2017

- Distraction by smartphone use may be a major contributor to injury.

- Timely interruptions could alert distracted pedestrians and prevent injuries.

- StreetBit app identifies distraction and alerts pedestrians as they cross streets

3 INTELLECTUAL MERIT

- Innovate, improve, and extend the **StreetBit** app; design new methods for detecting distraction and user location

- Establish, build and strengthen community partnerships (City of Birmingham Dept. of Transportation)

- Gather detailed observational data about distracted pedestrian behavior in multiple urban settings.
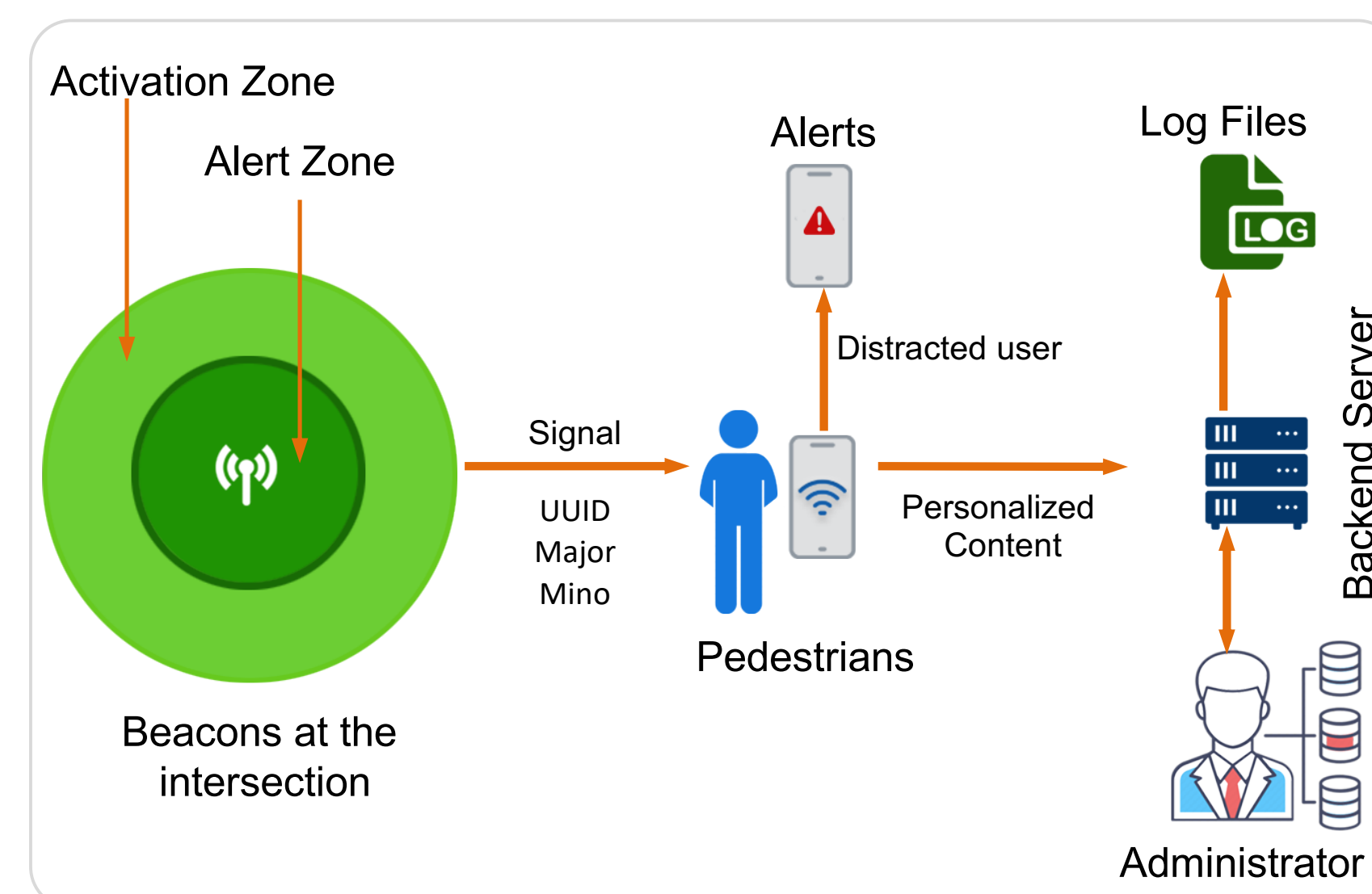
4 PROJECT OUTCOMES

Figure 1: StreetBit High-level Architecture
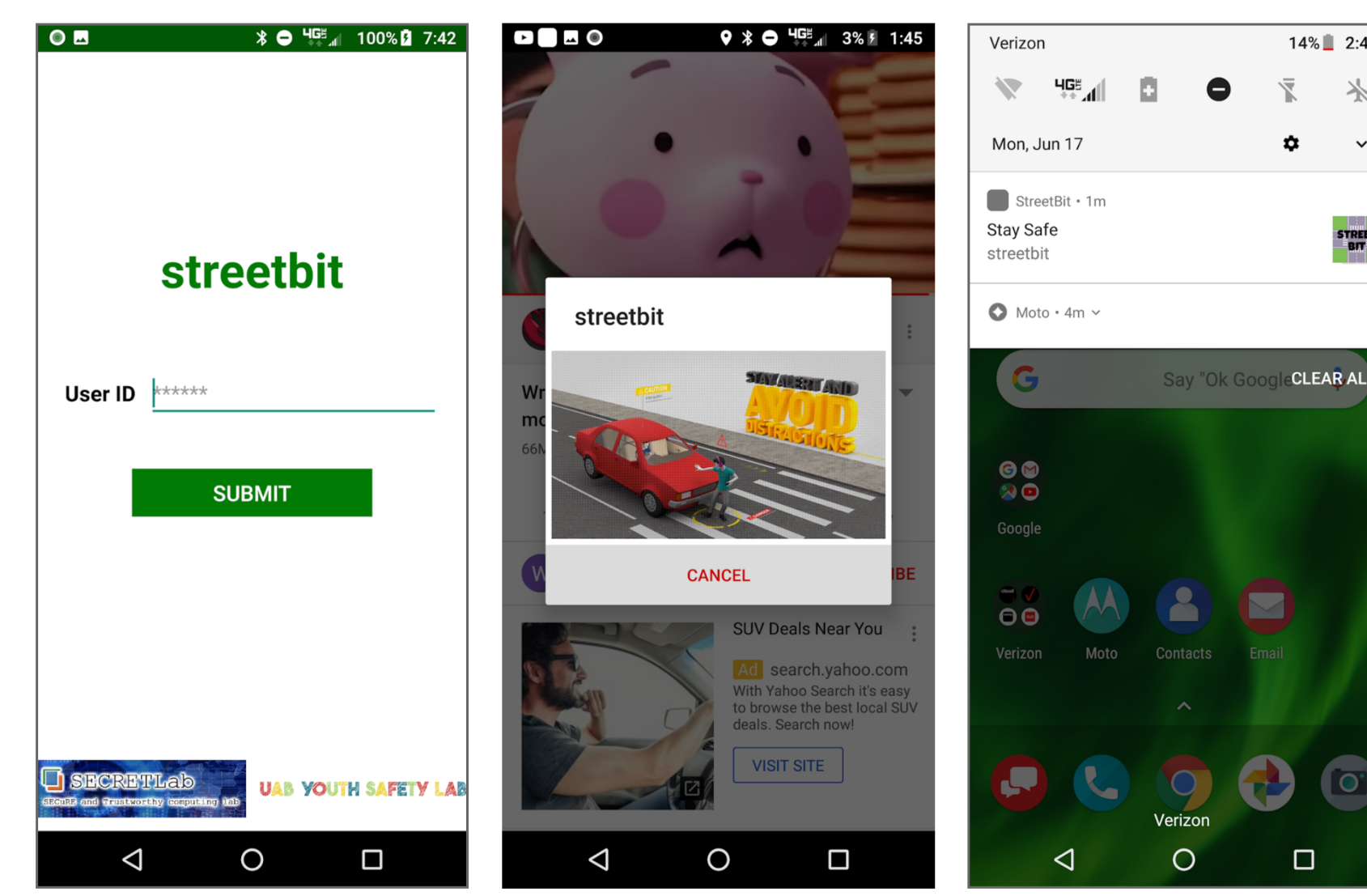
Figure 2: Test Deployment

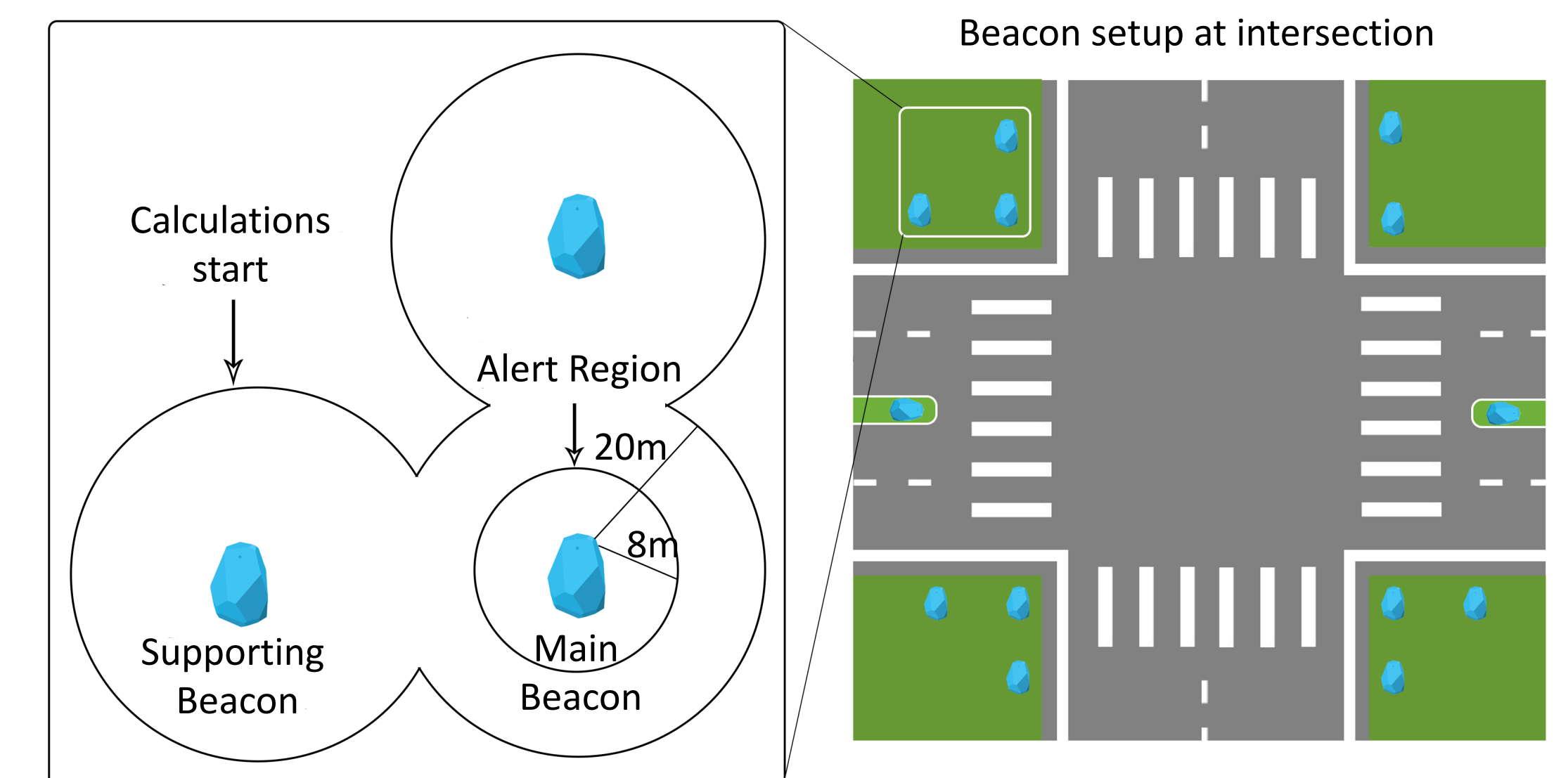Figure 3: StreetBit Mobile Application Interface

Figure 4: Beacon characteristics based on the position

5 IMMEDIATE IMPACT

- Training graduate and undergraduate students, including those from underrepresented groups.
- Conducting interdisciplinary collaborative basic scientific research (CS and Psychology) with a clear pathway to applied translation into practice.

6 SUSTAINABILITY

- Working with community stakeholders to involve them in planning and deployment schemes
- Building collaborations and the capacity to serve the community, including the large local African-American population.

7 FUTURE DIRECTION

- Deploy and Evaluate StreetBit in the City pf Birmingham, Alabama, in collaboration with our stakeholders
- Design a sustainable deployment and operational model that can be replicated across all over the country