Locy: Energy-efficient sensing with Android smartphones.

Martin Kukla (Supervisor: Dr Tristan Henderson)

Introduction

- Phone sensing may be utilized by mobile applications to provide **advanced services** such as navigation systems.

- **Phone sensing** fetches raw sensor data (e.g. from an accelerometer) and tries to extract high-level information from it (e.g. a user is walking).

- Such a process may have **high energy demands**, which is crucially important to mobile phone users.

- Energy-efficient phone sensing vs Tristan's results? or maybe HOW (what approach) ?!

Solution

- different energy efficiency levels across devices [GRAPH the difference]

- however, accelerometer always better than others [GRAPH accelerometer]

- movement detection which leverages energy-efficient accelerometer to switch off GPS [MAYBE GRAPH]

- duty-cycling + adaptive towards the battery life

Evaluation

- scenario I [GRAPH]

- scenario II [GRAPH]

Conclusions

What does it mean? [GIF HAPPY FACE + mobile phone + full battery]

Locy: Energy-efficient sensing with Android smartphones.

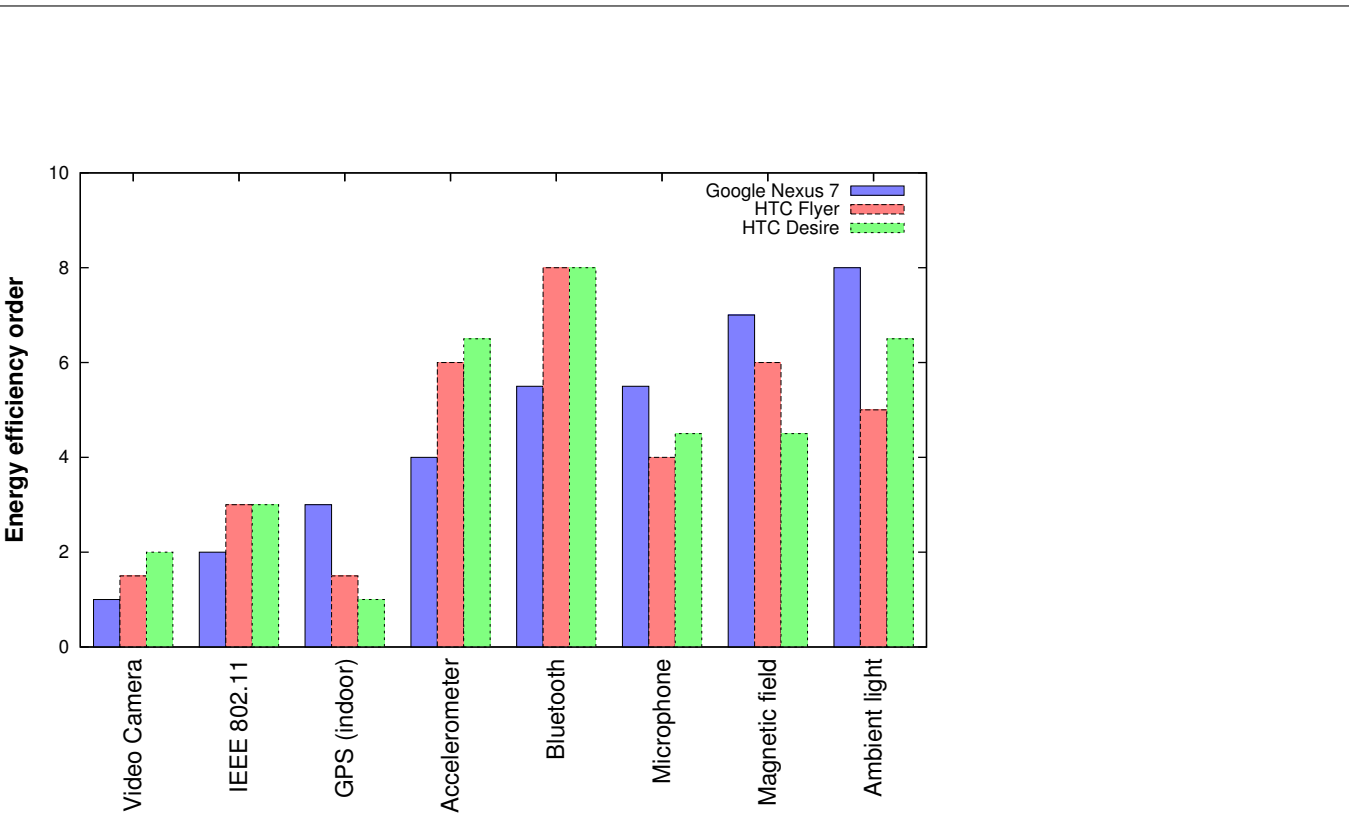Martin Kukla (Supervisor: Dr Tristan Henderson)

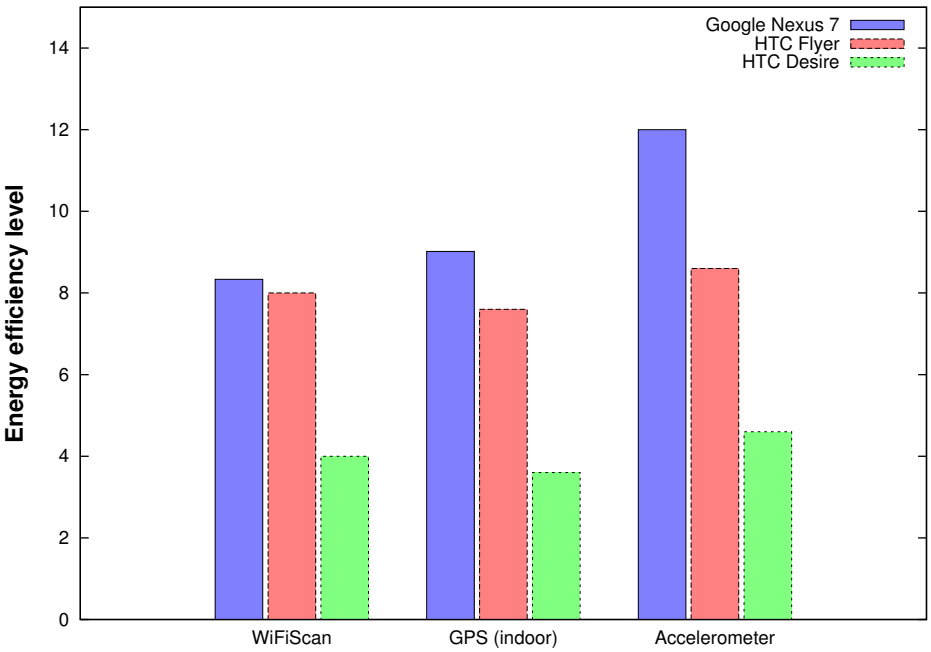**Figure 1:** Energy efficiency of sensors differs depending on a device.

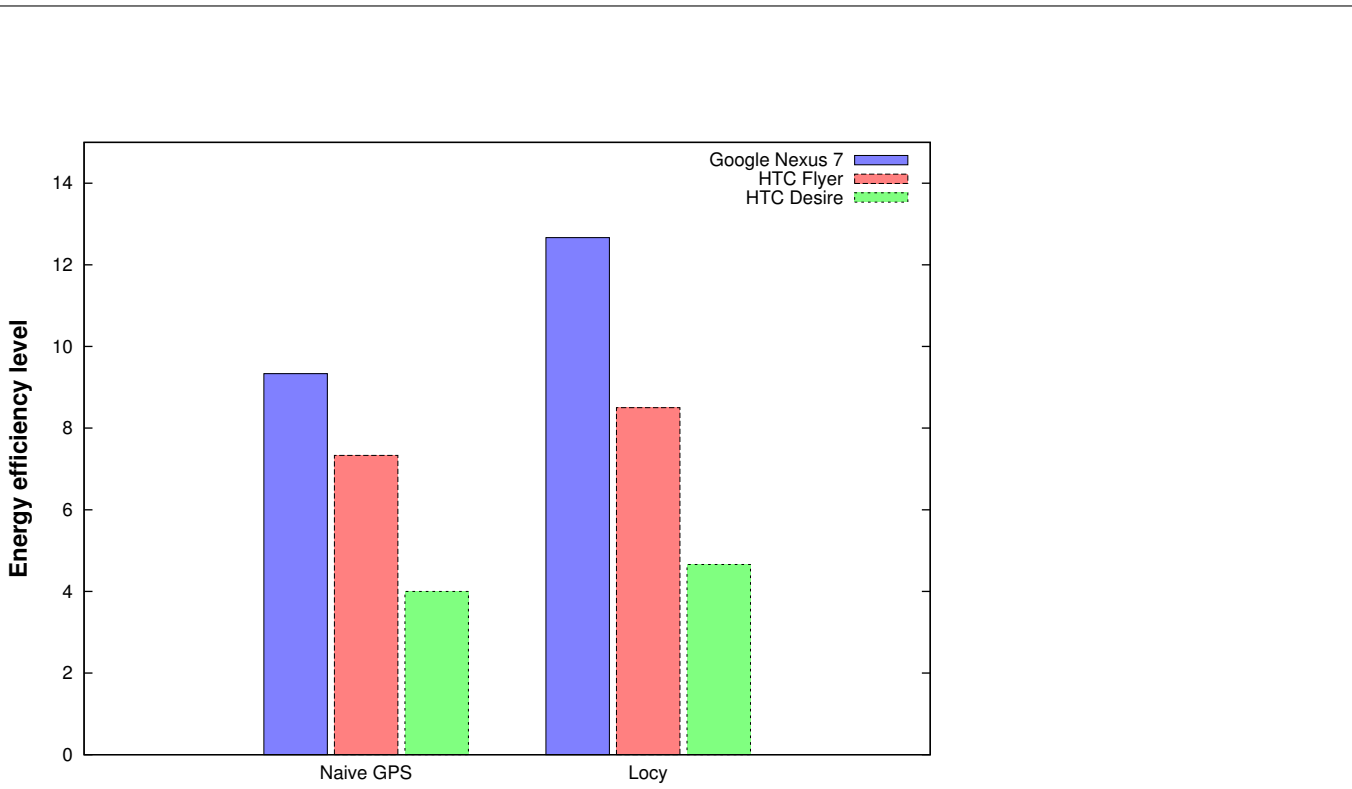**Figure 2:** Accelerometer is more energy-efficient than the standard localization sensors.

Figure 3: Locy is more energy-efficient than the naive GPS localization while a user is in place.
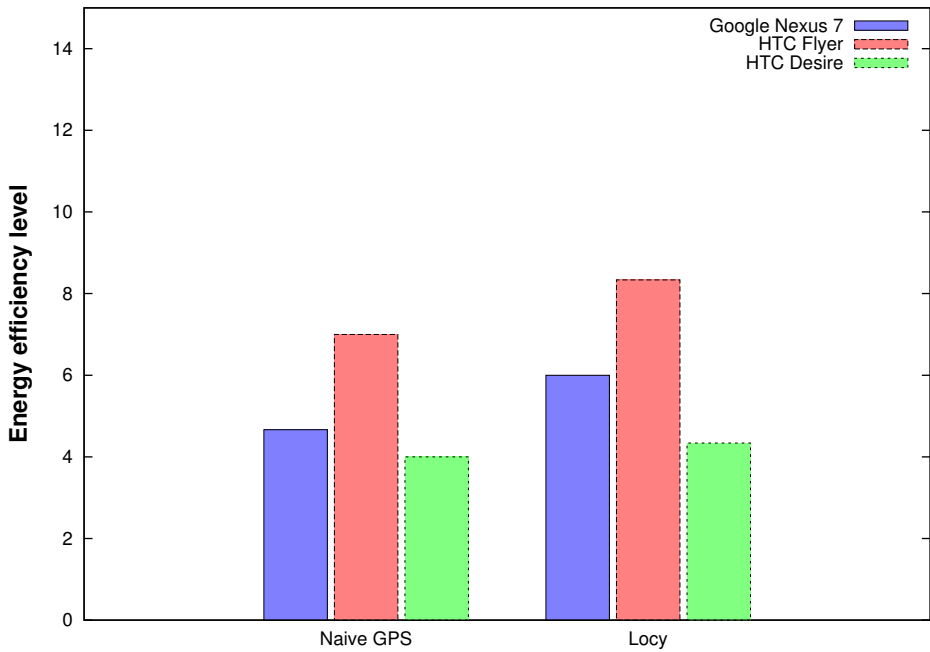

Figure 4: Locy is more energy-efficient than the naive GPS localization while a user is half of the time moving and the rest he is staying in one place.