Dynamic Participatory Sensing Discovery

The prevalence of smart devices (smartphones, tablets, smart watches, etc) offers a unique opportunity for developing instantaneous sensing networks. That is, collecting sensed data from a multiplicity of devices in any given region without deploying an infrastructure beforehand. In this project the goal is to develop a mobile application that will allow users to report their available sensing resources (luminosity, proximity, gyros, accelerometers, etc), and metrics governing the usability (available power, quality of sensor, proximity to sensed target) that will quantify their utility. A centralized DB will be designed and implemented (on a server) to pool available sensors, along with their viability metrics, to indicate potential applications that could be executed in real time at any given location. This project will entail a GUI that allows the operator to monitor available sensors and hosting devices, and overlay the results on a map (e.g. utilizing Google maps API). A core challenge in this project is identifying usable sensors among those that are unreachable, highly-mobile (i.e. only instantaneously available), or with poor quality.