

# **Autonomous and Distributed Recruitment and Data Collection Framework for Opportunistic Sensing**

## **Group 1**

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### **Abstract**

People centric sensing exploits the sensing resources offered by smart phones (or other sensing-capable devices) and the mobility of the people that carry them to perform sensing activities on areas, without the need to deploy special sensors in the areas of interest. Based on the degree of the participants' involvement in the sensing activity, people centric sensing can be classified as participatory or opportunistic sensing. For people centric sensing to be a successful approach, it is necessary to have a large number of participants. Due to the low degree of involvement required, opportunistic sensing may attract more participants than participatory sensing, and therefore be more preferable and robust. Current approaches for people centric sensing rely on centralized registries to recruit possible participants, moreover, the collected data is uploaded from the participants to remote servers by using cellular network. These approaches may lead to privacy and economical concerns that may be disincentive for participation. In our work, we propose a fully distributed framework for opportunistic sensing. The framework includes a recruitment component and a data collection component, both of which will work in an ad hoc fashion. We analyzed the feasibility of the distributed approach through extensive simulation and compared the obtained performances with other approaches that were devised for similar tasks in analogous environments.

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