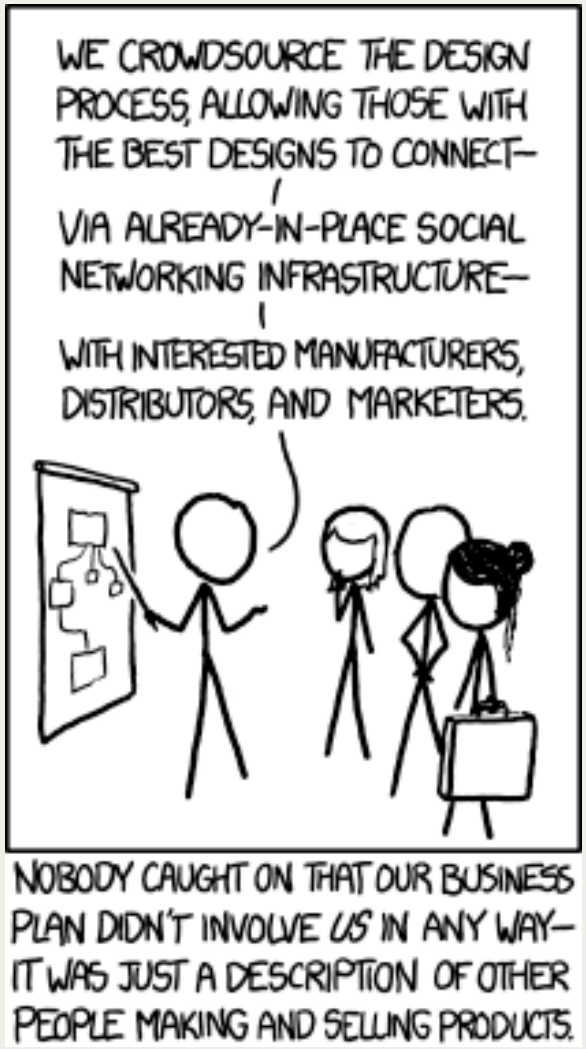


Source: xkcd.com

Kazemi & Shahabi:

GeoCrowd: Enabling Query Answering with Spatial Crowdsourcing

Seminar MediaQ
Basaran, Kinshofer, Sauer
08.12.14

Taxonomy of Spatial Crowdsourcing

- Spatial Crowdsourcing Classification

  Reward-based vs **Self-incentivised**

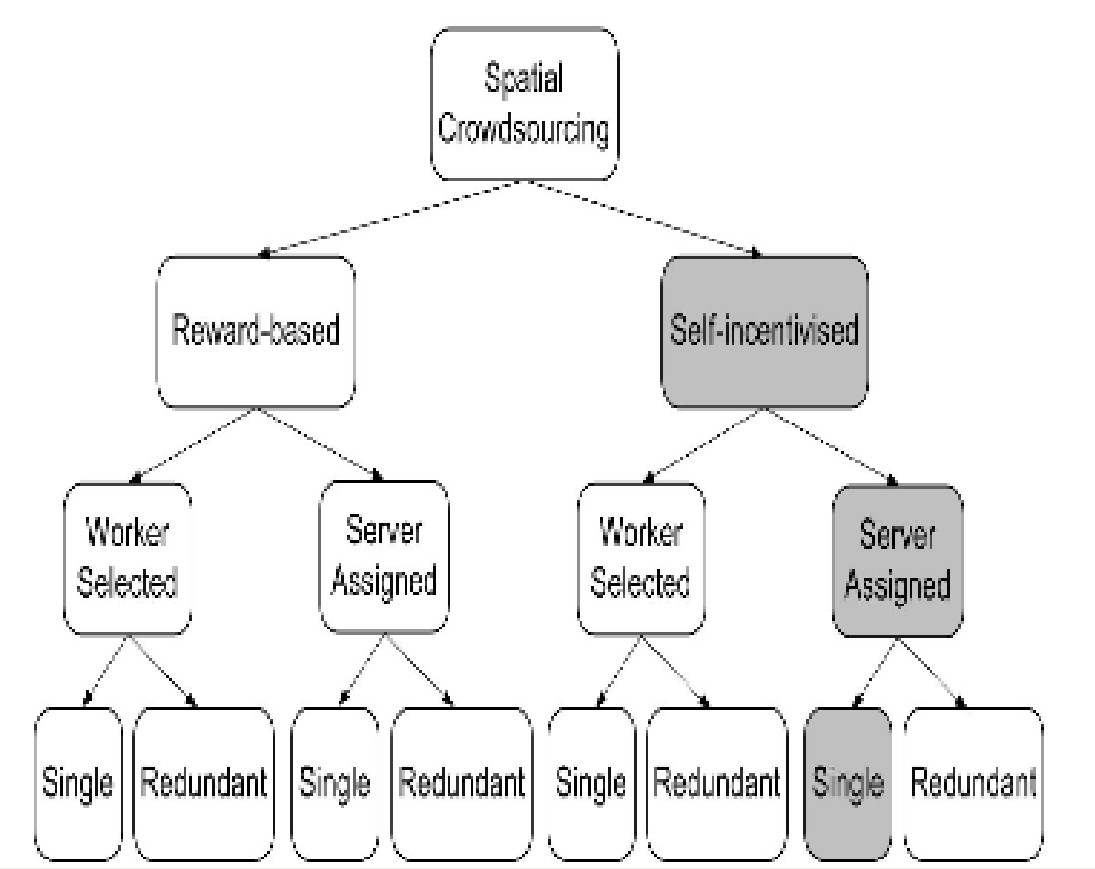
- Spatial Task Publishing Modes

  Worker Selected vs **Server Assigned**

- Spatial Task Assignment Modes

  Single Task Assignment vs **Redundant Task** Assignment

Taxonomy of Spatial Crowdsourcing



Quelle: Kazemi, L. & Shahabi, C.: GeoCrowd: Enabling Query Answering with Spatial Crowdsourcing

MTA-Problem

- Maximum Task Assignment:

Maximize **number of assigned Tasks** during time T, where Tasks are assigned at times $t \in T$

- Worker:

max. **number of tasks max** and **region R** in which he travels

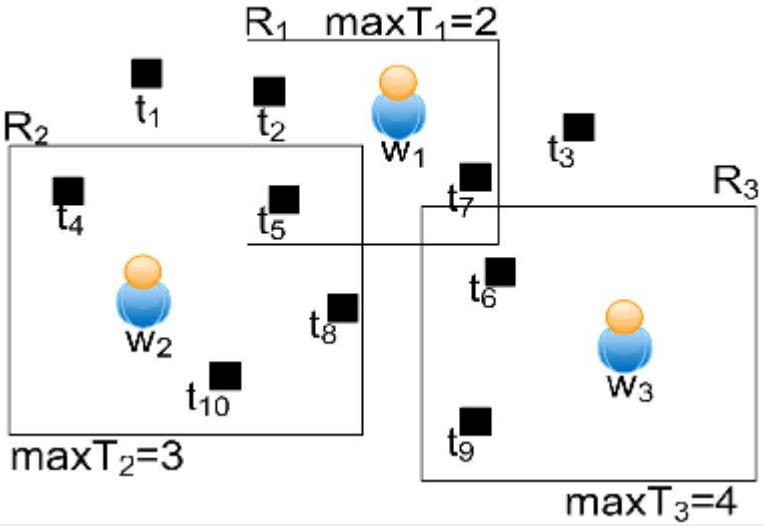
MTA-Problem

- Greedy-Strategy:

  Solve MTA-Problem **locally** for every instance of time

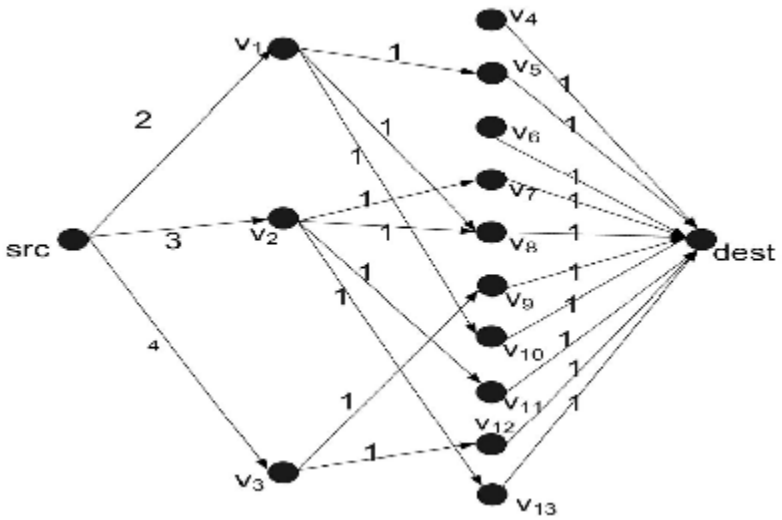
  Reduction to **Maximum Flow Problem**

MTA-Problem



Tasks and Workers

Flow Network Graph



Quelle: Kazemi, L. & Shahabi, C.: GeoCrowd: Enabling Query Answering with Spatial Crowdsourcing

MTA Problem

- Least Location Entropy Priority Strategy

  Higher priority to tasks in **worker-sparse areas**

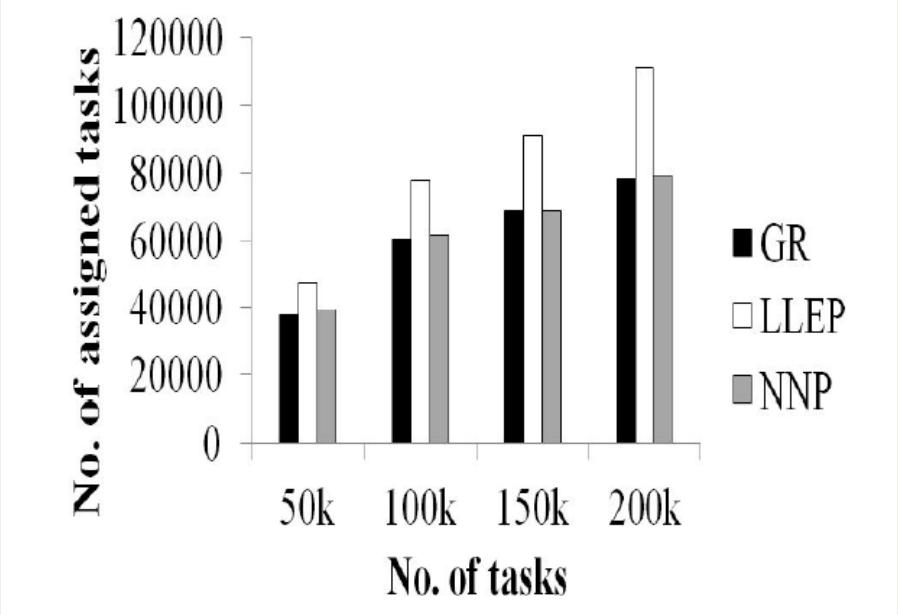
MTA-Problem

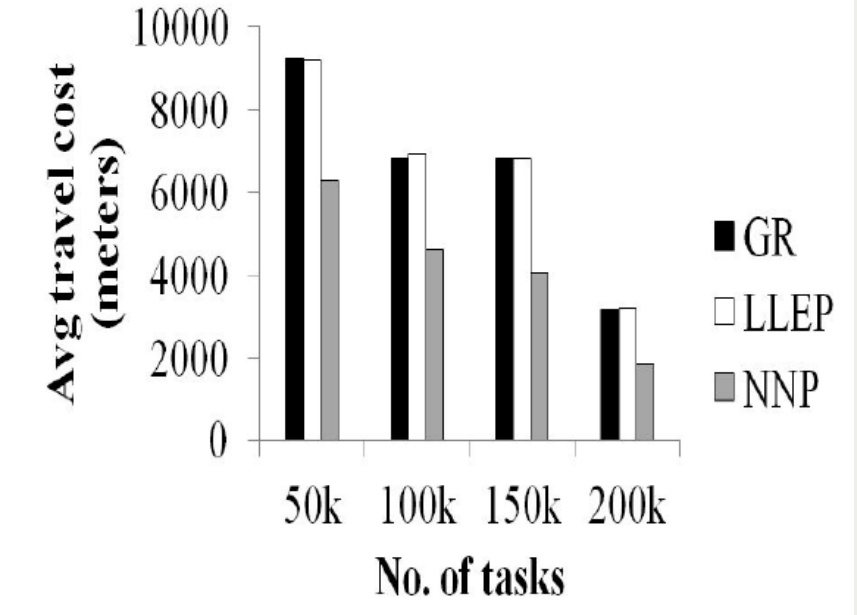
- Nearest Neighbor Priority

  Assign tasks with **lowest travel costs** for every worker

  (euklidean distance)

Evaluation





Quelle: Kazemi, L. & Shahabi, C.: GeoCrowd: Enabling Query Answering with Spatial Crowdsourcing

Use Cases

- **Student Orientation** – App:
  - Where are good Coffeeshops near LMU?
- **Crime Scene Investigation**:
  - Crime happened, upload all your videos
- **Alternate Reality Gaming:**
  - Citywide Räuber und Gendarm

Use Cases

- **Flashmobs**
- Proof for **Scavenger Hunts**

References:

- Leyla Kazemi, Cyrus Shahabi. GeoCrowd: Enabling Query Answering with Spatial Crowdsourcing. In Proc. GIS (2012).
- Ford, Lester R., and Delbert R. Fulkerson. "Maximal flow through a network." *Canadian journal of Mathematics* 8.3 (1956): 399-404.