

1. Aim of the Project

- To explore and implement an online hyperlocal casual job platform for neighbourhoods
- To explore the fundamental concept of a neighbourhood
- To provide personalised neighbourhood functionalities for mobile applications
- To provide self-administration functionality for neighbourhood networks
- Integration of a user-controlled client-side user modelling framework

2. Motivation

Recently, with the increase in number of location-aware smartphones being available, a growing trend has been towards location-based computing, and also even more recently, towards the hyperlocal Internet market. Neighbourhoods, representing a specific geographical area, are an ideal starting point for hyperlocal services and location-based/place-based computing in general.

There is a need for personalised services in the domain of hyperlocal/place-based computing, to allow neighbours to interact with one another. In particular, consider the implementation of a mobile neighbourhood networking application.

3. Defining a Neighbourhood

- In our approach, users can define their neighbourhood area (see Figures 1 and 2) on Google Map. A surrounding area can be defined by a radius that is provided by users as well.

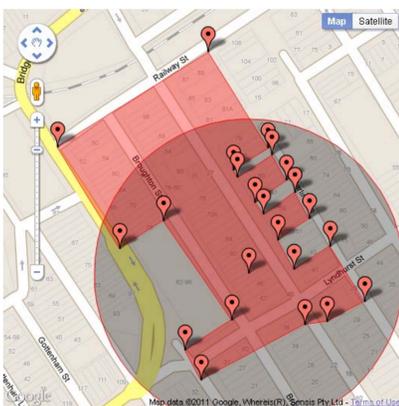


Figure 1. A complex block

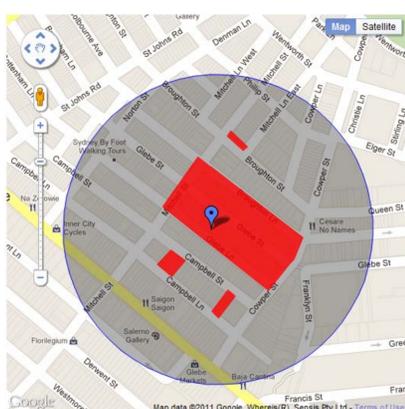


Figure 2. Multiple blocks

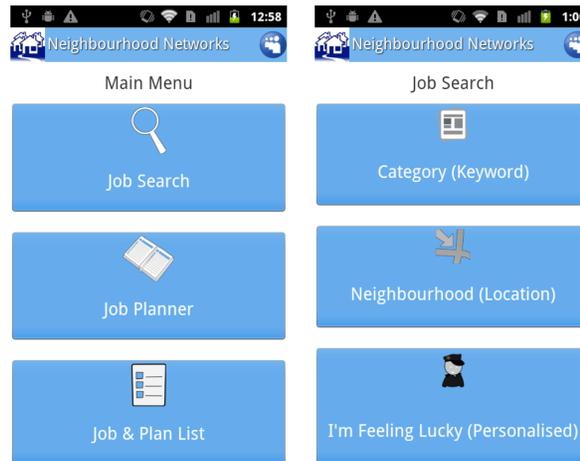


Figure 4. Menu screen and search functionalities

4. User Experiment²

- How useful do people find this service?
 - 4 out of 6: useful (or higher), average = 2.7 out of 4 (i.e. useful)
- Factors used when deciding the geographical region:
 - Properties on your block (4), Properties on the other side of the street (4)
- Price points for casual household jobs:
 - Car washing (average \$12.5), house cleaning (average \$12.5), feeding gold fish (average \$8)

5. Features of the Neighbourhood Networks Platform and the Smartphone App

- Ability to post and apply for casual jobs within a hyperlocal space.
- A job planner (see Figures 3, 4, 6, and 7) that can create a plan based on a user-defined time interval and a set of preferences.
 - The preferences (see Figure 5) consist of three aspects, pay, travelling distance, and category. To use the job planner, users need to rate the importance of these three aspects as well as each category
 - A Constraint-Based Recommender was implemented to create job rankings
 - An enhanced Weighted Interval Scheduling algorithm was implemented to calculate the job plans
- A Job and Plan list (see Figure 8)
- Personalised recommended jobs
- Integration with a user modelling framework PersonisJ, for storing user profile information

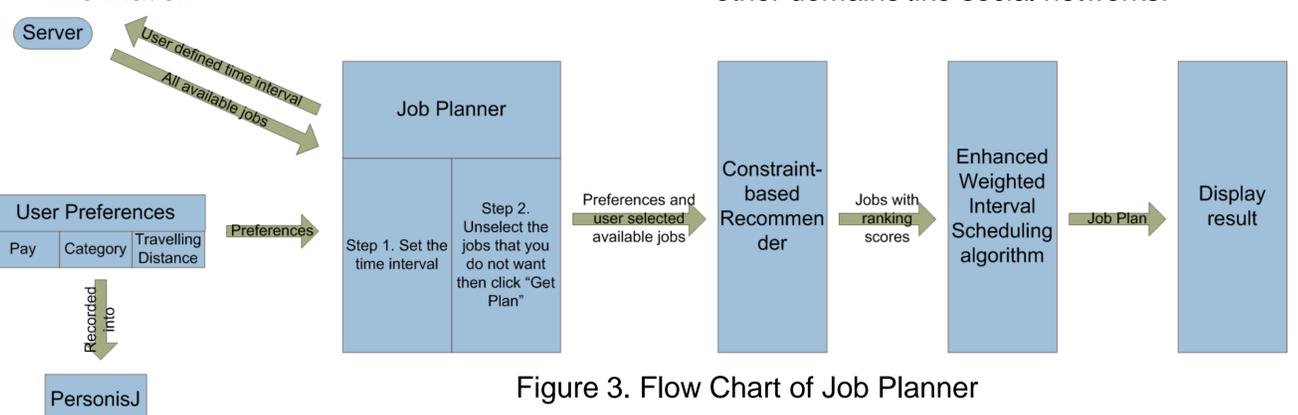


Figure 3. Flow Chart of Job Planner

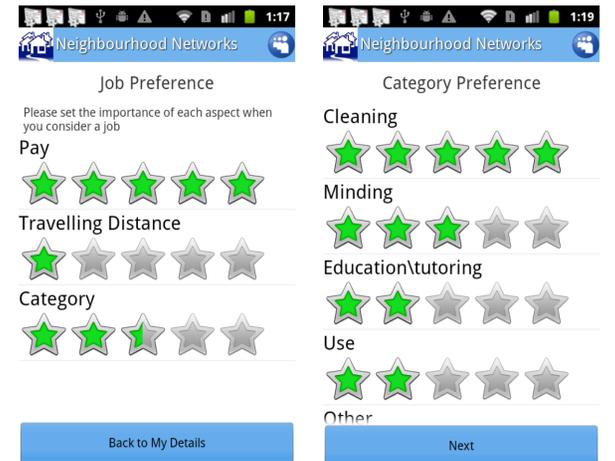


Figure 5. Preferences

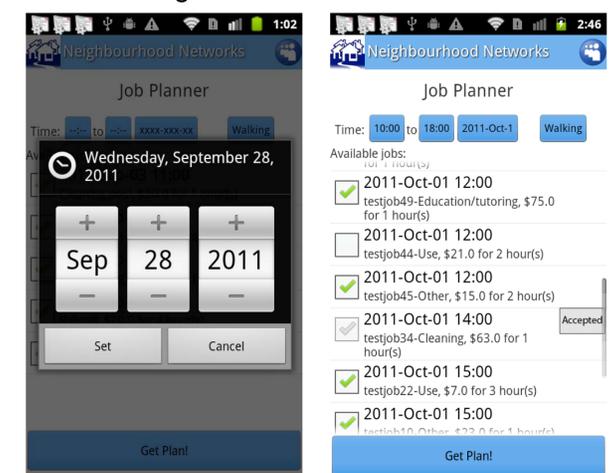


Figure 6. Setting up a job plan

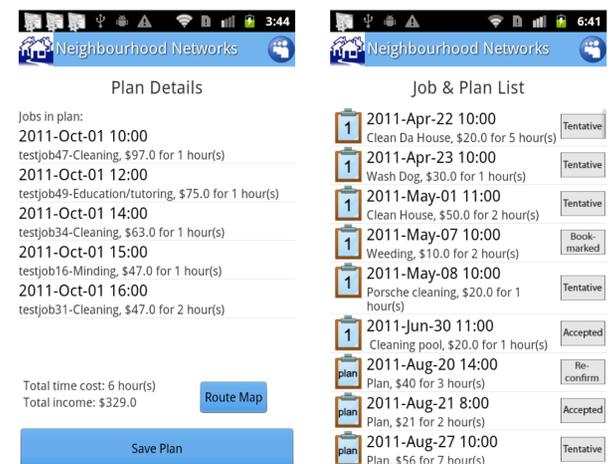


Figure 7. Plan details

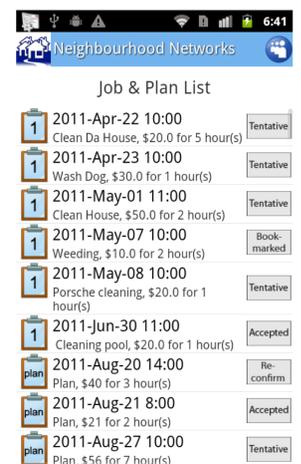


Figure 8. Job and plan list

6. Research Contributions

- Implementation of the Neighbourhood Networks platform as also published in [1]
- Exploration of people's awareness of their neighbourhood in a user experiment [2]
- Personalisation via auto-scheduling and job recommendation algorithms in the domain of casual household jobs.
- A platform for hyperlocal services, e.g. casual household jobs; but consider also other domains like social networks.

1. He, H., Wasinger, R., Fry, M., Kay, J., & Kummerfeld, B., 2011. A Platform for Personalised Neighbourhood Networks: The Case for a Casual Job Market. *Digital Cities 7 Workshop on Real World Experiences at ICT*, Brisbane, Australia, 2011.

2. RESEARCH INTEGRITY - Human Research Ethics Committee Protocol No.: 14131, 14 September 2011. This experiment has currently been conducted on 6 participants.