



1 Overview

Rubbish or litter bins can quickly and unexpectedly become full and then overflowing.

Councils don't want to visit bins more frequently than they have to but at the same time want to be able to respond quickly to reports of overflowing bins. Existing mechanisms for reporting overflowing bins are clunky and slow.

Many people now have smartphones that when used with an appropriate QR code reader can return the geolocation at which the QR code was read.

The idea is to use this technology to allow the public to quickly and easily report overflowing bins.

The app would, after having captured the data, send the council responsible for the bin a message.

Registered users would be incentivized and rewarded

2 System Components

2.1 Website

Information pages

Registration and profile page

App download instructions

Prize winners listing

Star-rating for regular contributors (Phase II)

2.2 Backend

2.2.1 Database

User details

Report details

Council/depot details

Project	Report an overflowing bin and win	Author	Quentin Brodie Cooper
Subject	Operational and technical needs	Date	20120715

Geolocation data

2.2.2 Functionality

Each report given a unique ID.

Deduplication of reports from the same proximity within a configurable time period.

Multiple reports from the same phone screened for timewasters

Each report associated with the phone number that submitted it.

The council replying to an e-mail report allows the system to register the owner of that phone number as having generated a false-alarm and consequently blacklist that number.

Geolocation package associates each bin location with the council or depot responsible for bins in that area and sends an e-mail to that location.

Random picking reward mechanism. To begin with done manually.

2.3 Smartphone App

Should be capable of resolving the QR code on a bin by a driver pointing a camera through an open window of a vehicle.

2.4 QR Code

The same QR code should be used everywhere.

QR codes need to be available in a number of different sizes so as to fit both on smaller wall-mounted bins and onto on-street bins.

3 System Actors

3.1 Individual users

Individual effort should require only:

- a) downloading of app
- b) photographing/reading of the overflowing bin's QR code
- c) optional pre or post-registration (post registration limited to 24hrs after reporting of an overflowing bin using phone number of phone used to report)

Pre-registration

This allows users to provide their telephone number and other personal details and validate an e-mail address before they start using the app. Validated users are automatically entered into the monthly prize draw and their reports are flagged as having come from validated users.

Profile information and updating

3.2 Administrators

Monitor system usage, numbers of registered users etc.

Adjust mapping of locations to councils/depots

3.3 Councils/depots

Should require no involvement of the council other than:

- a) the availability of an e-mail address
- b) allowing QR codes to be stuck their bins

Phase 2 – allows detailed records of overflowing-bin reports to be downloaded so a time-series patterns can be recognized and anticipated.

4 Other considerations

4.1 Payment/reward mechanism

A variety of options to be considered here but not investigated thus far.

4.2 Development profile

Should focus on getting the app into the marketplace and doing the essentials well first; the bells and whistles can come latter. (see Getting Real <http://gettingreal.37signals.com/>)

4.3 Support for other than QR codes

Texting a code would work but each code would have to be unique to a bin/location. Is geolocation information also available via texting?

4.4 Geolocation information

This may be available via a web-service or API.

4.5 Browser-base mapping interface

The least different from existing reporting methods though it may be desirable/necessary for those who want to report from the comfort of their desktops.



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