

Reporting crime through smartphones



Emergency lines are often clogged and deal with reports slowly. Considering the technological advance in the past decade, this can be done more efficiently. This sample POSTnote proposes a new method to report emergencies using smartphones.

Background

Figures of crimes and Anti-Social Behaviour (ASB) in England and Wales were estimated to 8.6 million incidents for the year ending March 2013.¹ The police received about 16 million emergency calls in 2012, although around half of them was not related to a request of help.² The average length of a 999 call is 68 seconds. These figures show that dealing with emergency calls takes up a considerable amount of resources. Furthermore, at least 600,000 crimes are not reported to the local forces every year. The reason for this could be:

- Absence of witnesses
- Impossibility to report the crime
- Lack of means to report the crime
- Negligence

The 999 line is based on the BT network. Around half of emergency authorities possess a system called EISEC (Enhanced Information Service for Emergency Calls) to transmit electronically the location information about the calling telephone.³ Otherwise, information about location and identity have to be given over the phone.

This briefing examines:

- How to simplify reporting methods in order to reduce the number of unreported instances

Overview

- Emergency phone calls are the only mean of reporting crimes remotely in the UK
- Smartphones provide richer and quicker ways of communicating
- The use of smartphones to report emergencies and crimes would produce improved reports in shorter times

- How to decrease emergency response times
- How to increase the number or quality of information reported in order to act more efficiently.

Capabilities of smartphones

The past few decades were dominated by the mobile phone. The quickest and most efficient method to communicate was verbally through a phone call. This has been the case until the advent of the internet on portable devices. The increasingly faster connections and the advent of web access through the mobile network made it possible to connect to the web from almost any location.

As of August 2012, the 4G network is introduced in the UK by Ofcom - the independent regulator and competition authority for the UK communications industries.⁴ The plan includes having a 98% UK coverage by 2014. The 4G technology provides faster and more reliable broadband connections compared to the 3G (see Box 2). Simple text messages can be transmitted over the internet in fractions of a second and pictures or video messages, in real-time.

Modern smartphones usually possess a camera with resolutions high enough to capture small details in a face. Furthermore, a Global Positioning System (GPS) device is usually integrated. Geo-positioning times are within seconds and accuracy ranges from 5 to 35 meters.⁵

Box 1. Internet use on a mobile phone, 2010 to 2013⁷

	2010	2011	2012	2013
				%
All	24	36	51	53
Men	29	42	56	57
Women	19	30	46	49

Smartphone users constitute 48.4% of UK population and 60.4% of mobile phone users.⁶ Use of the internet on smartphones rocketed from 24% to 53% from 2010 to 2013 (see Box 1).⁷ Projections estimate an increase in smartphones users up to 43.4 million by 2017 (see Figure 1).

The capabilities of taking pictures and reporting current locations in less than seconds are attractive properties that could make crime reports through smartphones significantly quicker than phone calls, including more detailed and objective information.

Application

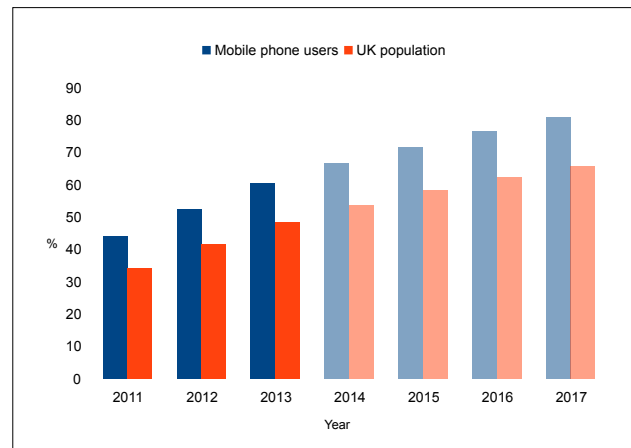
There are existing technologies allowing to quickly communicate information over the internet. Most of them are utilised by social networks to share text and pictures. Unfortunately, they are inefficient to report emergency situations. This can be easily implemented by new software employing shortcuts to easily report an emergency. Most smartphones already possess shortcuts to make emergency phone calls.

Visual information such as photos or videos of a crime being committed can be collected and sent immediately to local authorities. These could include audio recordings or written messages. Together with location information and identity details, an emergency report can be created and sent over authorities within seconds.

The reports would be easier to process compared to conventional 999 calls. Digitalized information would be transmitted automatically, without requiring the intervention of a person. Furthermore, the report would be more informative and would not essentially require speech. This is advantageous as in different situation the victim or witness can not be able to speak.

The advent of wearable devices, which can interact with the user hand-free, makes this form of communication even more appealing to these situations.

Figure 1. Number of smartphones users, in percentage of number of mobile phone users (blue) and total UK population (orange) from 2011 to 2013. Predictions up to 2017 are shown in transparency.⁶



Although the technology, and a few applications, already exists, emergency reports are still dealt over phone calls. Widespread use of smartphones could create a parallel service to the conventional 999 calls which uses these new technologies. This would reduce the load and workforce required to deal with phone calls.

Controversies

Privacy is the first concern which comes across when collecting possibly private information in public. This is a general issue with smartphones, though, and it is not restricted to this particular use.

An increase of false alarms might also be speculated. The easiness of reporting this information this way could also stimulate improper use and hoaxes, although the identity would be visible and it would be easier to identify abuse.

An important issue would be the management of a potentially huge quantity of data. Servers would have to deal with a conspicuous and potentially continuous amount of reports.

Box 2. Generations of mobile internet with different technologies, download and upload speeds (in Mbit)⁸

Year	Gen.	Technologies	Speed down	Speed up
1979	1G	Analog	/	/
1991	2G	GSM CSD	0.009	0.009
		CDPD	< 0.019	< 0.019
		GSM GPRS	0.055-0.112	0.055-0.112
		GSM EDGE	< 0.231	< 0.231
2001	3G	UMTS W-CDMA	0.4	0.4
		UMTS HSPA	14.4	5.8
		UMTS TDD	16	16
		CDMA2000 1xRTT	0.3	0.15
		CDMA2000 EV-DO	2.5-4.9	0.15-1.8
		GSM EDGE-Evolution	1.6	0.5
2006	4G	HSPA+	21-672	5.8-168
		Mobile WiMAX	37-365	17-376
		LTE	100-300	50-75
		LTE-Advanced	100	100
		MBWA	80	80

Endnotes

- Office for National Statistics, Crime Survey for England and Wales, March 2013
- BT Press Releases, June 2012
- BT SIN 278, Issue 2.1, January 2011
- Ofcom statement, <http://stakeholders.ofcom.org.uk/consultations/variation-1800mhz-lte-wimax/statement>, August 2012
- Proceedings of the 8th international conference on Mobile systems, applications, and services, pp. 299-314, June 2010
- eMarketer, <http://www.emarketer.com/Article/UK-Affluents-Savvy-Engaged-Digital-Demographic/1009924>, May 2013
- Office for National Statistics, Internet Access - Households and Individuals, August 2013
- International Journal on Electronics & Communication Technology (IJECT), Vol 1, Issue 1, pp. 68-72, December 2010