Tokyo Metro Efforts in Open Data

Kohei Kurosawa

Background

As part of events to celebrate the tenth anniversary of the company's establishment, Tokyo Metro Co., Ltd. (Tokyo Metro) has released information such as train location and delay times for all lines as open data for the first time by a Japanese railway operator. The company held an Open Data Utilization Competition from 12 September to 17 November 2014 to promote development of an app using this data and continues to provide the data even after the competition ended. This article introduces Tokyo Metro's efforts in open data usage, centring on the competition.

Introduction

Use of open data is gaining attention worldwide; it is the disclosure of data held by governments and corporations for anyone to use to help invigorate society and the economy. In 2013, the Abe Cabinet approved the 'World's Most Advanced IT Nation Declaration' and efforts are being taken to disclose public data at the same level as other developed nations by the end of fiscal 2015.

Tokyo Metro established the Tokyo Metro Share the Charm Project in September 2014 based on the theme of conveying Tokyo's attractions and Tokyo Metros' charm (peace of mind) in order to raise the city's international brand power by being a 'Guide to Tokyo' and a 'Vital Link in Tokyo's transport network'. This project has three key ideas: 'welcome everyone with world class safety', 'make subways more user-friendly and comfortable', and 'collaborate with local communities and make Tokyo more enjoyable'. Tokyo Metro is promoting development of an app by opening up operational data as a measure toward 'making subways more user-friendly and comfortable'.

The Open Data Utilization Competition was held in cooperation with the YRP Ubiquitous Networking Laboratory as part of this effort. Opened data includes train timetables, passenger numbers by station, and information on barrier-free facilities already disclosed on websites, along with train location, delays, and similar information to be disclosed for the first time by a public transportation operator in Japan.

Open Data Utilization Competition

Aims

The Competition had three aims.

First, to develop a unique app that could not be imagined or made by Tokyo Metro alone, for example, an app that links the company's data with other data to achieve innovative improvements to services. This is done by viewing open data as a form of infrastructure and entrusting application development to outside bodies.

Second, by disclosing information to outside bodies in anticipation of the 2020 Tokyo Summer Olympic Games, development of a multi-lingual app was encouraged to provide more wide-ranging services and to obtain various know-how on handling trends in open data worldwide.

Third, to speed up improvement of Tokyo Metro services and discover innovative possibilities for improving service levels, reversing the tendency of railway operators to resist innovation due to emphasis on safety and stability.

Disclosed information and submission rules

In addition to information already disclosed on websites, we opened up information on all trains in service, such as train direction, number, service type (local, express, rapid, etc.), start/destination station, train car owner company, location on line (at station or in section between stations), and delays (displayed as 'Delayed' if more than 5 minutes late).

During the competition period, we provided much-requested additional open data on line symbols and station numbering.

The main competition submission rules are listed below:
- Submissions must be original works not released previously.
- Submissions must be inventions of the developer who holds the copyright.

Tokyo Metro Open Data Utilization Competition Poster

(Tokyo Metro)

- Submissions may be combined with other data with no copyright issues.
- After registration at a special website set up for the competition, submissions must be released on Google Play, iOS App Store, Windows Store, or a site of the developer's choice.
- The developer shall not earn profit by releasing, duplicating, redistributing, or publically transmitting data made available on the special Tokyo Metro website for the competition or work submitted for the competition.
- In-app advertising or in-app billing is prohibited during the competition.
- If Tokyo Metro suffers material or non-material losses due to the app, provision of open data to the developer will stop immediately.
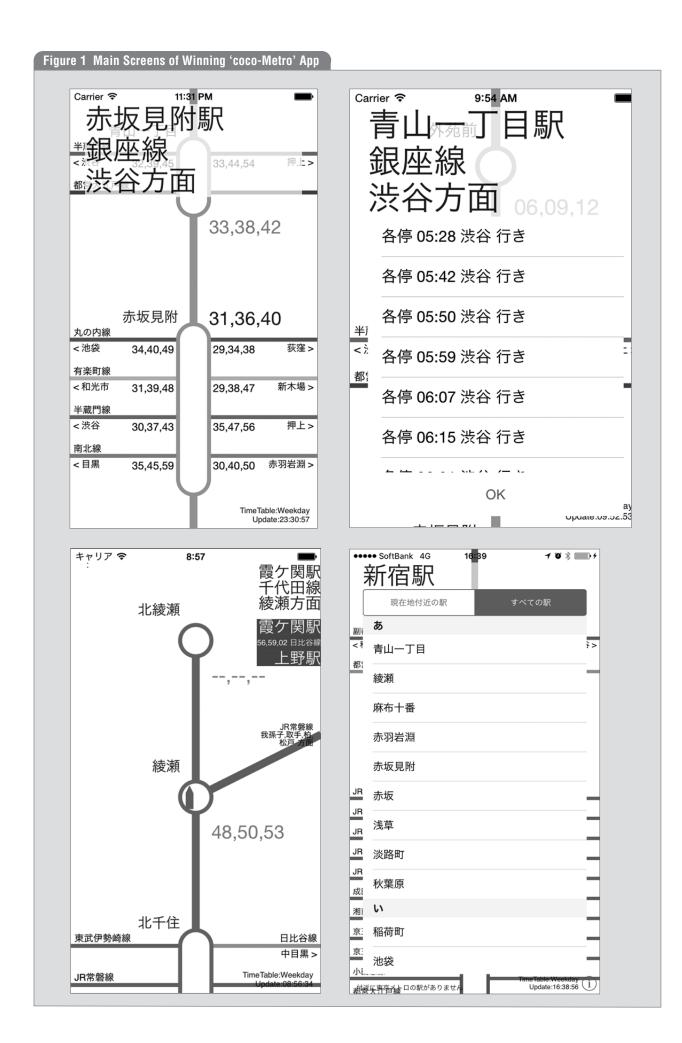
Submission and winners

About 2,200 registrations were received, and 281 apps were submitted by people of various ages, occupations, etc.

As expected, many unique apps offering fruitful results were received. Although the Grand Prize winner, 'coco-Metro', currently can only be used for Tokyo Metro lines, it was valued for being an app showing the possibilities of open data that would be even more convenient if data from other railway operators were to be provided. It is also worth noting that many multilingual apps were submitted in anticipation of Tokyo's further growth as an international city. Development of multilingual apps such as 'Subway multi language MOD' and 'Tokyo Trip Supporter for families' was valued for significant efforts in open data.

Table 1 Competition Results

	Prize	Winning App	Developer
Grand Prize	¥1 million	coco-Metro	Takehito Ikema
Merit Award	¥500,000	Moshimo Alarm	Ahiru Factory
		Delay Prediction Tokyo Metro Version	MTI Ltd.
Good Design Award	¥150,000	TOKYOTOKYO	Hakuhodo i-Studio
		Tokyo Arteria Flow-in	Takatsugu Kuriyama
Metro 10th Anniversary	¥50,000	Subway multi language MOD	@mima_ita
		Tokyo Trip Supporter for families	gherz (Takeshi Yoshioka)
		Uchi Kaeru	Tom Sawyer
		Metronavi	Nobuhito Ibaraki
		Imadoko?	Satoshi Hyuga
		Metro Toilet Finder	hassaku
		Tokyo Metro Elevator Guidance	MetaPGRS
		TrainNow	yukiono
		Hey Tokyo Metro, Look at this	Bits Co., Ltd.
		For Seasons Train	Okoi
Special Award	¥20,000	Citymapper	Citymapper

Table 2 Judging Committee

Head Judge	Ken Sakamura	Professor, The University of Tokyo Interfaculty Initiative in Information Studies/Director, YRP Ubiquitous Networking Laboratory
Judges	Nobuyuki Okamoto	Honorary Professor, Rikkyo University
	Eriko Takezawa	Secretary General, GINZA Machizukuri Council
	Kenji Irie	Senior Managing Director and General Manager of Railway Headquarters (at time), Tokyo Metro Co., Ltd.
	Koichi Murao	Senior Managing Director, Tokyo Metro Co., Ltd.

Figure 1 Main Screens of Winning 'coco-Metro' App

In addition, there were submissions from countries other than Japan, showing the impact of this competition. 'Citymapper' already has a track record in other countries, and submission of the Tokyo Metro version as the first in Asia reflects the high level of interest this competition attracted. The competition showed the possibilities of expanding services for customers through development of more apps that would supplement information provided by station information displays.

Figure 3 'Tokyo Trip Supporter for families' Screen

Figure 4 'Citymapper' Screen

Conclusion

After receiving so many competition submissions, we have continued providing open data even after the competition ended and we are accepting new applications for using the data to allow development of more apps making Tokyo Metro ever more user-friendly and comfortable service for all customers. Since the competition ended on 17 November 2014, there have been about 500 new applications, and six new apps have been released.

Through efforts like this, Tokyo Metro is continuing its work to be a subway that all customers can use with 'peace of mind'. ■

Kohei Kurosawa

Mr Kurosawa is currently employed in the Publicity Section, Public Relations Dept., Tokyo Metro Co., Ltd.