

Category: Traffic and Public Transport

Project: Tokyo Metro Passenger Information System



Tokyo Metro Passenger Information System

This newly developed banner-type LCD has an aspect ratio of 1:4 and can display two train lines. Given that Tokyo Metro has one of the most sophisticated and precise operations systems in the world, it requires a PIS that conveys a greater volume of information than anywhere else in the world.

[Left] Banner-type LCD

[Top right] High Definition LCD

[Bottom right] Microbanner LCD

Banner-type is the standard model. High definition LCDs are used in large-scale stations with high ceilings, and microbanner-type LCDs are used for lower ceiling heights of approximately 2.2 meters.

What was the challenge?

Tokyo Metro is a massive subway network that has nine train lines covering 200 km of tracks that service seven million people in central Tokyo each day. The network includes seven lines that have direct connections to other railway companies on each end. If those lines are also included, Tokyo Metro has 500 km of connected lines.

The Fukutoshin Line has the most links to other lines, allowing passengers to utilize five different railway companies without changing trains.

The shortest interval between trains on the Tokyo Metro lines is only one minute. Other than emergency situations, Tokyo Metro can boast of maintaining a precision timetable that is never more than one minute off schedule.

One very important challenge is that

information must be conveyed in a way that can be clearly understood by a multitude of passengers that run the spectrums of age, disabilities, education and dialects.

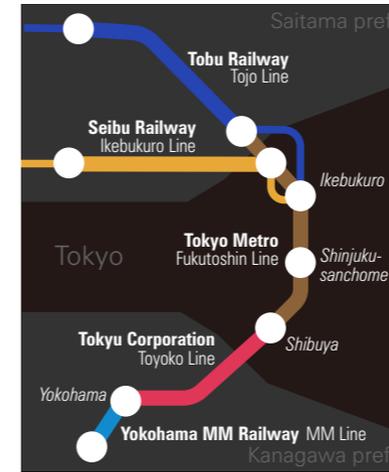
As the 2020 Tokyo Olympics approach, foreign language supported information will become vital in supporting the ever increasing number of foreigners who will also be utilizing subway services.

What was the solution?

A PIS (Passenger Information System) renewal project was started in 2010. First, data was collected through passenger and Tokyo Metro staff questionnaires, and then analyzed to determine what kinds of information needed to be provided. Concurrently, future approaches to the display of information and flow control installation plans were proposed, and display content and display equipment

specifications were scrutinized together with Tokyo Metro and railway signal systems and equipment manufacturer, Nippon Signal Co. Ltd.

As described earlier, the complexity of Tokyo Metro railway network necessitates the conveyance of large amounts of information, but due to subway ceiling height restrictions there are many places where standard high definition LCD cannot be installed. That is why Tokyo Metro and Nippon Signal decided to develop and employ horizontal banner-type LCDs. Up until now, a banner-type LCD was yet unprecedented, so final designs had to be created through repeated discussions with the two companies, contemplating what kind of information to incorporate, and to consolidate such differing informational elements as routes (directions, destinations), schedules and delays, number of



Tokyo Metro Transit System

Tokyo Metro has continuous routes with direct links to other railway networks on each end that allow passengers to access the routes of other companies without having to change trains. The Fukutoshin Line, for example, provides direct connections to the lines of four other railway companies.

stops (local, rapid, semi-rapid), etc. into a congruous format. Finally, in 2012, a prototype was developed. Two Tokyo Metro stations installed the prototype and demonstration tests were conducted.

During the demonstration testing, feedback was collected from passengers and station staff for evaluating and reassessing the design.

The prototype had only supported Japanese and English, but upon Tokyo winning the bid for the 2020 Olympics, work began on integrating Simplified Chinese and Korean.

Although the English and European alphabets clearly differ from Japanese characters, there is in fact a great deal of difference among Japanese, Chinese and Korean characters, as well. At the time we began this project, the three Asian



Four-language Service

Other than Japanese and English, the languages most used by tourists in Japan are Chinese and Korean. In preparation for the Tokyo Olympics in 2020, Tokyo Metro will install Japanese, English, Simplified Chinese and Korean language displays in all stations.

languages shared no common font family. An extensive number of fonts were juxtaposed and, finally through trial and error, similar fonts that maintained a uniform design among the three languages were selected. In addition to a superficial design, we proposed signage to Tokyo Metro that went beyond simple translation and could be used in subways abroad (unfortunately, many of them were not adopted), all with the goal of creating a higher-quality design that could be easily understood by both Japanese and foreign passengers.

What was the effect?

As of now, this project PIS has only been installed in two of the nine subway lines, so it is still difficult to assess its impacts in full. However, in preparation for the Tokyo Olympics, a universal PIS for all of the Tokyo



[Top] Universal Designs

Demonstration testing and monitoring are currently being conducted on all displays in an effort to accommodate color vision deficiencies and achieve universal designs.

[Bottom] Railway Pictograms

When Tokyo Metro first opened in 1927, it was the first subway in Asia. Its history has been reflected in the designing of a pictogram in the likeness of the trains that first ran at the time.

Metro lines and stations will need to be installed by 2019, and it is anticipated that the same PIS will become a standard for all railway networks in Japan.

In fact, this project has become the model upon which other Japanese railway companies have been developing their PIS, and it is expected that by 2020, similar systems will appear nationwide. It seems that railway companies from each of the other Asian countries have taken an interest in this project, as well, so expectations are high that it will influence PIS far beyond Japan's borders.

Contact:

name: NANMOKU Toworu
company/organization:
Ginza Design of Communications GsK
e-mail: nanmoku@ginza.design
website: <https://ginza.design/>