ABSTRACT
We introduce an iPhone / iPod touch timetable application using WiFi location system named "Eki.Locky". This application adopts UGC (User Generated Content) approach to collect TimeTable information and WiFi access point (AP) information from public users. Since the service started in October 2009, Eki.Locky has been used by over 440,000 people, posted timetable information covers 98% of all stations in Japan and 350,000 WiFi AP information were collected. In addition, since June 2010, we started a new version of this application named "TimeTable.Locky" which supports any timetable such as buses and airplanes. TimeTable.Locky also has been used large number of people, and collected over 23,000 of timetable information.

Categories and Subject Descriptors
H.4.0 [Information Systems Applications]: General

General Terms
Management

Keywords
WiFi location technology, wireless lan, user generated contents, location aware service

1. INTRODUCTION
Recently, the wide spread use of mobile devices with GPS or WiFi enables users to get their location easily. New location aware services are expected to appear. Therefore, we have been managing a portal page named "Locky.jp"[6, 7], and have performed a demonstration experiment of WiFi location technology in the subway of Nagoya City[8]. Then we released the iPhone/iPod touch timetable application using WiFi location system named "Eki.Locky" and "TimeTable.Locky" since October 2009. This system adopts UGC (User Generated Content) approach such as Wikipedia and Open Street Map[2] to collect timetable information and WiFi AP information from public users, and show the count down of the next train on the client application. Although there are other UGC-based AP information collecting services such as Skyhook[4] and PlaceEngine[3], we motivate users to submit AP information by providing useful location aware service like this. In this paper, we report about the service operation status of "Eki.Locky" and "TimeTable.Locky".

2. EKI.LOCKY
Eki.Locky consists of two modules. One is Eki.Locky Web Service[1] to manage the timetable information and WiFi AP information posted by users. The other is iPhone / iPod touch client application which downloads and uses the data. Client application can use the following features:

- Detecting nearest station by WiFi location technology.
- Show the count down to the next train’s departure.
- Show the list of timetable.

Figure 1 shows the system overview of Eki.Locky.

2.1 Collecting and Sharing Timetable Information
Users describe their required timetable information in a specified text format, and upload to the Eki.Locky Web Service(User registration is required to upload). Other users can download and use
Figure 2: Screen shots of Eki.Locky client application

these uploaded timetable information with the client application. To maintain accurate timetable information, we give the administrative privileges to the user who came forward to be the supporter of Eki.Locky. Only supporters can modify and delete the timetables uploaded by others. In Japan, we can obtain timetable information from some Web services provided by companies but all of them prohibit users from converting or redistributing their data in their terms of use. Therefore we selected UGC approach to collect timetable information, and to build a huge timetable database freely available to everyone. Figure 3 shows the status of uploaded timetable information. In only half year, 98% of all stations in Japan are fixed with timetable.

Figure 3: Status of uploaded timetable information

2.2 Collecting and Sharing WiFi AP Information

Eki.Locky client application has a function to collect WiFi AP information. A user can record mappings of the station displayed on the application and the observed wireless LAN information in the user’s location. After the recordings, a user can get his or her nearest station when the WiFi AP information exists in the mappings. Users can upload their recorded WiFi AP information to the Eki.Locky Web Service, and other users can download the data and use for detecting nearest station. Figure 4 shows the status of uploaded WiFi AP Information. Currently over the 350,000 APs information have been collected.

Figure 4: Status of uploaded WiFi AP information

TimeTable.Locky, users input not only the timetable information but station information(includes station’s location) and route when uploading timetable information to the Web Service[5]

4. CONCLUSION

In this paper, we report about the service operation status of “Eki.Locky” and “TimeTable.Locky”. We have succeeded to collect position dependent information such as timetable information or WiFi AP information by the UGC approach. Although these informations require high accuracy, we also succeeded to motivate users to maintain the accuracy of the data by providing an environment that can communicate with other users. In the future, we will release an international version of TimeTable.Locky and try to collect more information all over the world.

5. REFERENCES