

Project Name: Campus GIS: Mobile Field Data Collection for University Campus Management

Funded Organization:

Japan Society of Promotion of Science and Technology, Grant-in-Aid for Scientific Research A, JSPS-2010 (Y. Murayama).

Introduction

Recently, use of mobile communicational devices in field data collection is increasing such as smart phones and cellular phones due to emergence of embedded Global Positioning System GPS and Wi-Fi Internet access. Accurate timely and handy field data collection is required for disaster management and emergency quick responses. In this presentation, we will discuss about mobile field data collection by using Smart phone and we construct the centralized geodatabase to collect, integrate and deploy the field data through Web-based GIS system. This Web-based GIS will be used as Tsukuba university campus management and facility information for students.

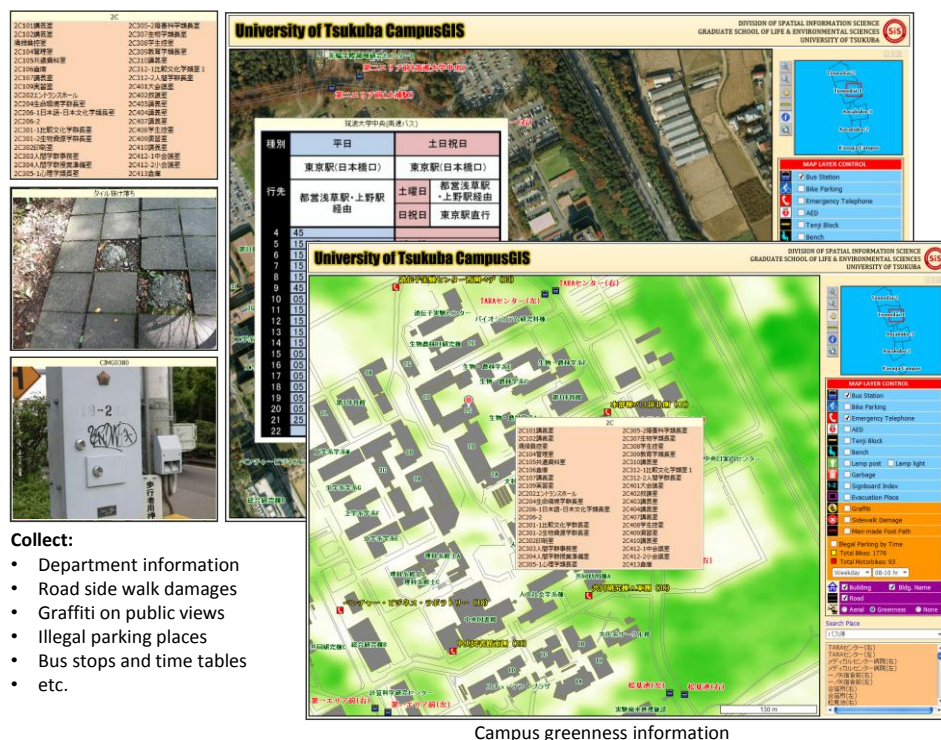
Project Overview

Perhaps the most exciting area of computer system development continues to be in hand-held devices such as personal digital assistant (PDA), ultra mobile personal computer UMPC, Netbooks and smart phones. A smartphone is a mobile phone that offers more advanced computing ability and connectivity than a contemporary feature phone. They are much

recognizable efficient in form factor (size, shape, weight, etc), chip type, internal storage capacity, battery life time and operating system compare to desktop computers.

Along with hardware development, operation systems use in smart phone are become more and more compact and functional such as iPhone (Apple Inc.) and Android (Google). On the other hand, increasing popularity of the Internet and user-friendly web-based GIS applications such as Google Maps/Earth and Microsoft Bing Maps platform have made GIS is an integral part of life today for finding the nearest facilities, driving routes and so on.

We collect the locations of Automated External Defibrillator (AED), Garbage boxes, bicycle stands, faculty building names and associated departments, etc. by smart phone. Then the data was converted into ESRI shape file and injected into web-based GIS. This result will be used university administrators to improve the campus condition and students daily lives. Students can also find the available facilities by giving search distance known as closet facility analysis.



Users access

- Administrators
- Students
- Visitors
- Green exercise takers
- etc.

URL: http://land.geo.tsukuba.ac.jp/campusgis/CampusGIS_jpn_big.aspx

Figure 1: Web-based Tsukuba University campus management GIS system

Read more about this project at:

Lwin, K. K., & Murayama, Y., (2011), Web-based GIS System for Real-time Field Data Collection Using Personal Mobile Phone, *Journal of Geographic Information Systems*, 3(4):382-389.

<http://www.scirp.org/Journal/PaperInformation.aspx?paperID=8037>