

Campus GIS: Mobile Field Data Collection for University Campus Management

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Introduction

Recently, use of mobile communicational devices in field data collection such as smart phones and cellular phones is increasing due to the 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 mobile field data collection by using Smart phone and construct the centralized geo-database 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.

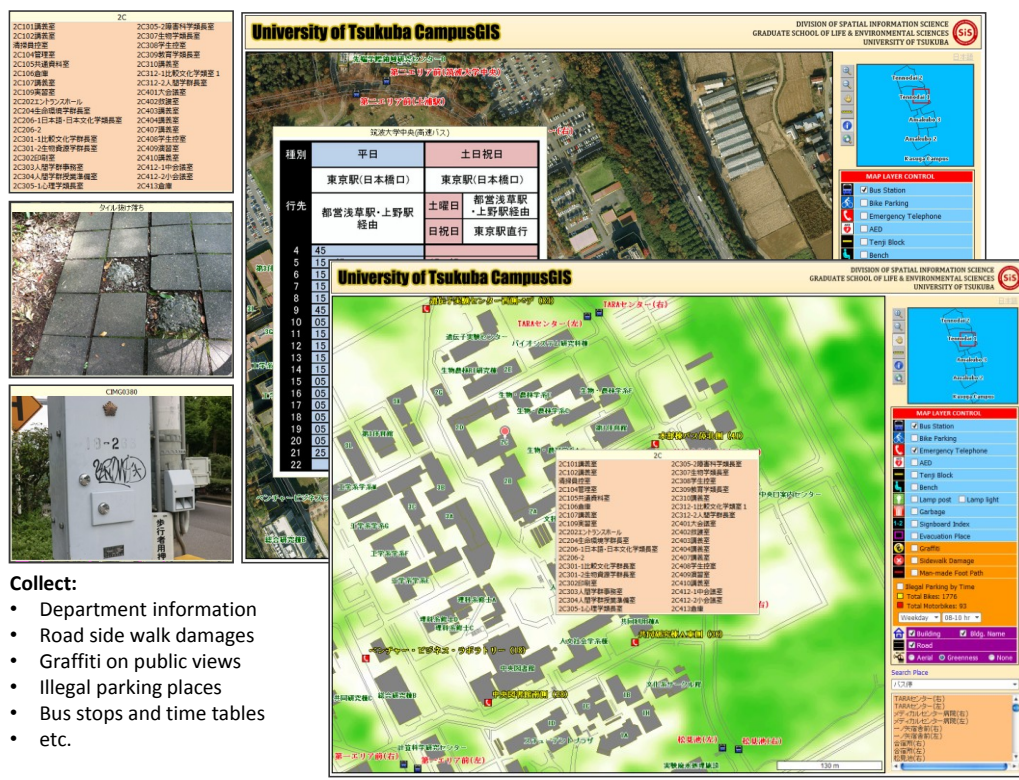
Project Overview

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 comparing to desktop computers.

Along with hardware development, operation systems in smart phone are becoming more and more compact and functional as shown in 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 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.



URL: http://land.geo.tsukuba.ac.jp/campusgis/CampusGIS_jpn_big.aspx
Figure 1: Web-based Tsukuba University campus management GIS system

Users access

- Administrators
- Students
- Visitors
- Green exercise takers

