

Development of a Loading GPS Mobile GIS for a Census Field Survey(A case study of some area of Gangnam-gu)

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<Abstract>

The concept of Mobile-GIS(MGIS) come into existence by more active use of GIS in PDA that is said to be the best tool for wireless Internet.

The MGIS, which is now experiencing great development by a navigation system, would be well utilized in the Census to cover whole country.

The 21st century requests more sophisticated techniques in the contemporary census. The optimal environments for field survey and management would be brought out in ED delineation by field checking of duplication and omission of households or the shortest route and network functions of GIS.

This study aims to introduce the experience of constructing a mapping system by MGIS which was applied to *Gangnam-gu, Seoul* and it is expected to affect a future census-taking.

1. Preface

MGIS which consists of PDA and GIS is currently prevailing.

However, it isn't yet fully utilized even though the prevalence of navigation system and the study of information technology(IT).

It is because there are several unsolved operational problems in the utility techniques of mobile terminal units, mobile communication service and geographic information, etc.

This study tries to develop a Loading GPS Mobile GIS for a Census

2. Outline of the Census

It should be preceeded to delineate EDs for census-taking.

EDs are important not only clarify areas given to enumerators but also to avoid duplication and omission in counts. And, the 21th Century requires more scientific techniques for census-taking.

It plays a fatal role in securing successful census to carry out the ED delineation by using GPS function since the EDs are more using for compiling small area statistics. BUDs with MGIS have large possibilities for the automatic creation of EDs.

Hence, the quality of data would be enhanced in near future through the one-stop process from enumeration to tabulation in the census.

The introduction of a Loading GPS Mobile GIS for a Census would provide the optimal survey environments and management infrastructure through field enumeration.

3. Usage of a Loading GPS Mobile GIS for a Census

This chapter deals with the function and requirements of a Loading GPS Mobile GIS for a Census.

- Detection of position

For the detection of position, it is essential for MGIS to have coordinates information on position together with indicating function of address on digital maps.

It will also be useful if the coordinates information of investigator appears automatically by the Loading GPS Mobile GIS for a Census.

It can use the networking and path-detecting function of GIS.

- Input and up-to-date of geographic information : Much re-entries of correction for geographic information and boundaries of BUDs built in MGIS. Also, it is the case to correct maps because the built-in map are not always correct. Taking it into consideration, the system should be developed to enter and renew the map information.

- Entry of information on map trait: MGIS can enhance the ability in field survey. It is convenient since the information collected can be saved in the form of geographic boundaries.

It is possible to record automatically the enumeration time and input by either pen or keyboard.

- Compiling, analysis and Output ; It is designed to be able to check data collected and to analyze statistically.

4. Outline of a Loading GPS Mobile GIS for a Census.

It is designed to be able to input easily even for beginners by starting Windows. It is also made possible to compare to the past data and data prior to 5 years ago.

It supports such functions as erasing, printing, layout, boldness of letter of pen entry. It can create files to contain sex, age, address of respondents to support the entry of summary tables.

It is developed the function of 3 dimensional elevation in apartments.

To review the feasibility of MGIS, it was practiced in some areas in *Gangnam-gu*. This area is believed to be good place to apply the system since the type of housing is diverse but not too much change so that it is ease to maintain to make a series of data.

5. Conclusions

This study constructed a Loading GPS Mobile GIS for a Census.

This system was developed as a prototype model and communication and network are thought to be essential function.

It is necessary to contain more wide function for the effective usage and more attentions should be drawn to the aspects of technical and institutional system related to data transformation and security.

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