Spatial distribution and significance of objects in finding a place: a case study of University of Tsukuba

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1. Motivation

The bus goes around the University, students get on and off from the bus, students come by bicycle and some students walk directly knowing where to go, while some students walk here and there wondering where to go. This happens every year and there are many international students in the University fall into the last category, wondering how to find a particular place especially in their early stage after entering to the University. Lack of spatial relations between objects creates an uncertainty in finding them. However, it can be minimized by sequencing the associations between nearest identifiable objects.

2. Introduction

The University of Tsukuba is one of the biggest universities in Japan in terms of the area with nearly 3km^2 and about 4km in length and about 1km in width. The University has many graduate schools and there are many student including international students. One common problem faced by, especially, international students is finding a particular place within few weeks to few months, and in some cases more than that, from their first arrival to the University. When, self cognition in finding places does not assist, tendency is to ask someone to get directions. Finding and giving directions need to be supported by identifying significant objects with in a range. These identities or objects may not known to, specially, new comers while only few are commonly known. However, there may be some identities or objects that can be easily spotted within the visible area. By identifying these spatially distributed significant items one can give and find directions easily.

3. Methodology

First the identities are extracted from the Campus GIS project. The suitable points are taken using GPS during the field survey. The Viewshed is generated using 10m DEM data for the International Student Center as a selected point. Subsequently the observer points also created for a given point (P03) as show in the Figure 1. This is repeated for all identity and points.

4. Results and Discussion

The generated Viewshed for the identified object P03 shows that the given point, the International Student Centre is not within its visible region. The generated observer raster also reveals that it also cannot be detected the given object. However, it shows that there is a near identity which can be easily identified (BUILDING_CNAME2 - Advanced Research Building A). Consequently this method can be applied to chain the object identification to extract an easily communicable protocol.

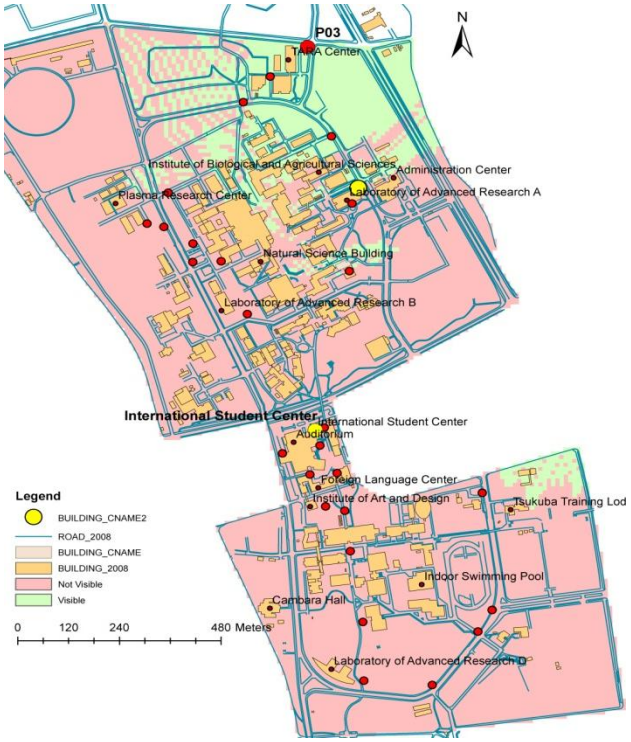

Figure 1: Viewshed and Observer Point for given point ISC and P03