

# Mapping & characterizing the parking lots inside the University of Tsukuba, Japan

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**1. Purpose:** The objectives of this fieldwork were to map and characterize the parking lots inside the University of Tsukuba, Japan by using GPS and GIS.

**2. Methods:** A field survey, aided with a handheld GPS, was conducted to determine the geographical locations of the parking lots inside the University of Tsukuba. These geographical locations, which include the X & Y coordinates, were loaded into the GIS platform (ArcGIS) as points (.shp file). These points, which represent the parking lots, were characterized using the attributes recorded during the field survey such as capacity, type (*regular* or *special*) and accessibility form (*open* or *with gate*). In particular, “special parking lots” are those devoted to people with physical disabilities while “regular parking lots” are those other than special. “Open parking lots” are those without gates and do not require gate pass while “parking lots with gate” are those that require gate pass.

**3. Results & Discussion:** Figures 1 and 2 present the spatial distribution, type and accessibility form of the parking lots inside the university. A total of 83 points (with a total capacity of 8,287 parking spaces), representing the geographic locations of the parking lots in the university, were collected. The recorded accuracies of these points range from 3m to 7m with an overall mean accuracy of 4.56 m. In particular, 73 points are regular

(8,258 capacity) and 10 are special parking lots (29 capacity). These 73 points regular parking lots include 53 open (2,961 capacity) and 20 with gate (5297 capacity). On the other hand, the 10 points special parking lots contain 8 open (19 capacity) and 2 with gate (10 capacity). In order to avoid potential confusions, it is worthwhile mentioning that the number of gates does not necessarily correspond to the number of “parking lots with gate”. For example, in Ichinoya student residence, although there are only 2 gates, the recorded number of parking lots inside these gates was 7.

Generally, parking lots inside the university are located near the academic buildings, offices, student dormitories, and sports and medical facilities (*i.e.* athletic oval, gymnasium, and hospital). These cater to the needs of the employees, students and visitors of the university. Mapping and characterizing them provides more detailed information to both the existing and potential users. This is most specially to the visitors who are not familiar of the location, who do not have direct access, and who intend to stay for a short period of time only and prefer to use open parking lots. It may also improve the accessibility and utility of all the parking lots, which may also help in maintaining the good traffic condition inside the university.

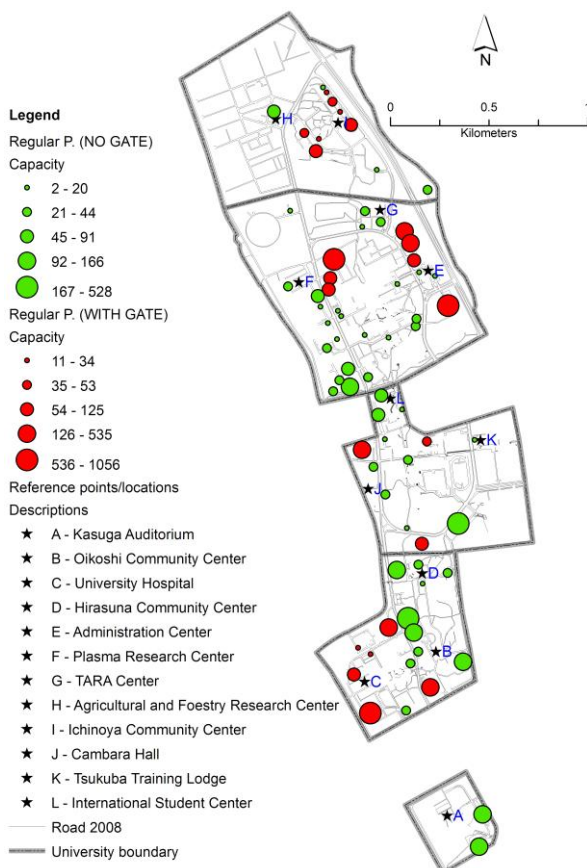


Fig. 1. Spatial distribution & characteristics of the *regular* parking lots inside the University of Tsukuba, Japan

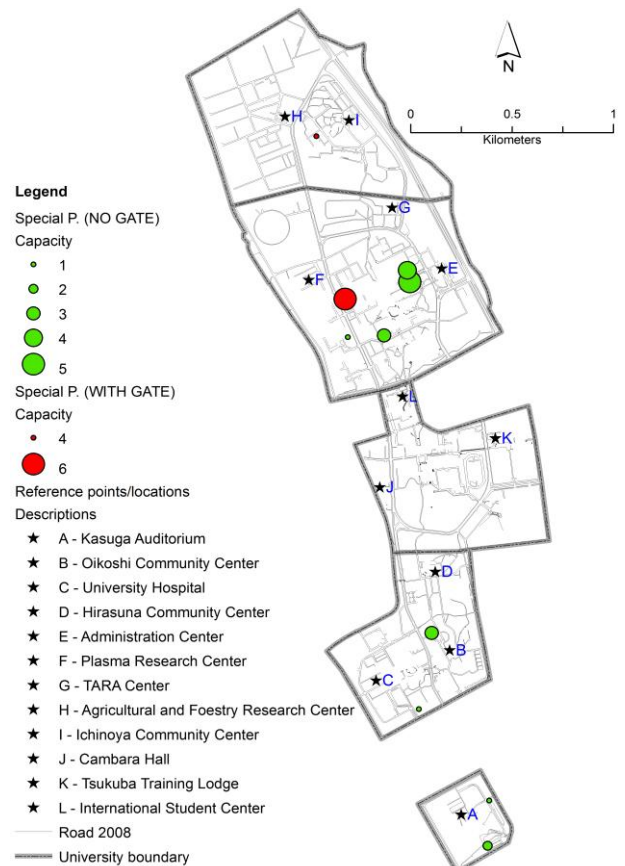


Fig. 2. Spatial distribution & characteristics of the *special* parking lots inside the University of Tsukuba, Japan