Abstract ID: *ASRS2018 – 16*

A MODEL FOR "MICRO-LOCATION": A POSSIBLE APPLICATIONS IN CAR PARKING IN SRI LANKA

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Person who owns car or use car as the transport mode in Urban Area of Sri Lanka often waste their time to find out the right parking avenues and face inconvenience due to the absence of enough parking space, lack of vacant slots, minimum security and maximized parking fees etc. Even though owners/drivers choose the correct location through Global Positioning System (GPS) tracking, man made errors could be aroused due to the complexity of road mapping, where multiple guidance are common towards the same parking place. Therefore, this study was focused more on understanding the influencing factors on identifying parking places with the assistance of GPS and GPS incorporated existing Mobile Applications and to avoid the Multiple Guidance towards the selected location in Sri Lanka. For that, primary data were collected from randomly selected (150) respondents through the pre-structured questionnaire in Colombo District to understand the satisfactory level on existing GPS based technologies and to identify the parking slots. Finally, the results were correlated with the assistance of Statistical Package for the Social Sciences (SPSS, version 22). According to the results obtained through the questionnaire, education level on Information Communication Technology (ICT) had the positive significant relationship ($p<0.01$, $r=0.745$) with the level of perception and willingness of the respondents. Access and understanding the technologies such as image processing ($r=0.789$), sensor application ($r=0.568$), GPS and IoT ($r=0.690$), mobile applications ($r=896$), web application ($r=0.658$) and payment transaction ($r=498$) had the positive significant relationship ($p<0.05$) with the youngsters and the knowledge, which they possess with. More than 90% of the respondents mentioned that those techniques are common in existing car parking sites. Nearly 89% of the respondents preferred to affix Geo-fencing and Distance Matrix for the Micro-location in mobile application with the existing GPS technology. It was evidenced by the respondents (92%) that they were interested on finding the parking avenues in tiny deviation spotted by Distance Matrix. Although they knew well (79%) about Geo-fencing, more than 67% of the respondents were poor on understanding the Distance Matrix, where the knowledge showed the positive significant relationship ($r= 0.868$) with its application and adaptation. Additionally, the system was forecasted with the interconnection of GPS, Geo-fencing and Distance Matrix in mobile application, which would be more accurate than solely with GPS and Geo-fencing. Therefore, forecasting this model for Micro-location adjoined mobile application on route identification can be encouraged in future due to the willingness of the owners supported with the present pilot study.

Keywords: *Car parking, Distance Matrix, Geo-fencing, GPS, Micro-location*