



TRACKING AND AUTOMATING A LIBRARY SYSTEM USING RADIO FREQUENCY IDENTIFICATION TECHNOLOGY

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Abstract- This paper discusses implementing a Location-Aware Library RFID service employing Radio Frequency Identification as a communication technology. Automating a library system with passive RFID tag infrastructure is proven to be feasible, and can be achieved with even distribution of RFID Antennas, well-designed RFID network, the appropriate middleware, and a library application with an accurate error function that minimizes the error in the detected location to 35 cm. The paper first discusses the effect of using RFID on the upper application and System layers. Next, a simulation of randomly distributed tags with spatially distributed antennas is shown. Simulation results are explained in order to validate the proposed approach, which proves that adding a localization feature to the system layer is feasible with an acceptable error range that does not exceed 1.1%.

Index terms: Radio Frequency Identification, RFID, Library Automation, Location-aware, Localization.