

Implementation of a person oriented nurse call system using WEKA

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Hospitality is meant to be better three hours too soon than a minute too late. With the increasing population and growing pollution the hospitals tend to be occupied too. Providing best care at the right time is the goal set to all the nurses in hospitals. This can be done by considering lots of facts regarding the patient well known as the context information. Context information is becoming increasingly important in a world with more and more wireless devices that have to be in touch with the environment around them. Maintaining a myriad caregivers for the continuous care had become a hard task and this lead to the emergence of the Electronic healthcare (eHealth) solution. We focus on how this context information can be efficiently modelled by employing an ontology. The eHealth application used is the ontology-based Nurse Call System (oNCS), which assesses the priority of a call based on the current context and assigns the most appropriate caregiver to a call. Decision trees and Bayesian networks are used to learn and adjust the parameters of the oNCS. The two types of nurse calling systems are place oriented nurse calling system and the person oriented nurse calling system. The paper mainly focuses on the difference between the two systems and brings out the best nurse calling system with the simulation results. The ontology was developed by the OWL (web ontology language) and implemented using the machine learning tool WEKA. The ontology can be used by the reasoning algorithms which are based on the context information. Considering the two cases of place oriented and person oriented nurse calling system the comparison shows the person oriented nurse calling system to be much more better than the place oriented. The drawback of the nurse calling systems are well studied by the case studies in both cases. Implementation using WEKA is embedded with the knowledge of database concepts. A database is created by considering all the risk factors of patients and the availability of the nurses and the study shows the average rate at which a nurse can serve the patient as quick as possible. A web service interface was designed which allows the insertion or extraction of new information into the Knowledge Base. Finally the simulation was made to illustrate the advantages and the performance of the new person-oriented approach.