Mobile Application for Blood Donation using Geolocation and Rule-Based Algorithm

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Abstract—Blood is a very important resource for humans because it acts as a medium for carrying the oxygen and nutrients to all other parts of human bodies. Blood demand continuously rising due to a lot of factors such as accident, disease, and research purpose. The issue is that the blood donation process will take time and is it hard to know whether the individual can donate their blood or not. To make sure that the supply of blood is enough to cover the demand, the Easy Blood application will be developed to make the blood donation process more efficient and faster. The geolocation technology was chosen to help the blood donor or people who need the blood to know the location of people who need the blood and blood donor. Besides, the rule-based algorithm is estimated to make the blood donation process goes efficiently by filtering the characteristic so that only suitable donor can donate the blood. Iterative Waterfall model that consisting of requirement analysis, design, system development, testing, and documentation helped the process of developing the application effectively because it consists of step by step process. If there are flaws found in any phase, the process can be reversed so that the problem can be solved. The application was tested using functional testing by three lecturers and everything are working. Last but not least, the application can be improved by implementing the machine learning that can help to predict the blood donor behavior and also the timing of the blood shortage.

Keywords—Blood Donation, Geolocation, Donation Process, Rule-Based