A Humanitarian Blood Donation Application That Facilitates the Search for Potential Blood Donors and the Smart Management of Blood Storage

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Emergency blood shortage is an urgent problem worldwide. Currently, the propaganda process, selection of blood donors and organization of blood donation are often excessively time-consuming. To the best of our knowledge, there has been no application developed to serve the need to find blood donors quickly and accurately, in order to save lives in emergencies. Therefore, we have designed the “Mobile Blood Bank - MBB” application to enable hospitals to expeditiously find and contact the most probable blood donors with a compatible blood type within the closest vicinity, thereby increasing the possibility of saving lives in an emergency. The “MBB” application can track registered donors within a predefined range by integrating Google Play Service Location API. Afterward, it can efficiently predict who will be the most likely to donate blood among the people found in range by deploying the low-complexity Logistic Regression algorithm. In post-trial, the “MBB” application was evaluated based on 3 criteria “Rationale, Installation and Testing, Efficacy” by 220 medical professionals and recorded an average score of 4.41/5 on the Likert Scale - the most widely adopted approach to scaling responses in surveys. Also, trials of the Logistic Regression Algorithms returned an accuracy of 90% in predicting the most probable and suitable blood donors. By notifying potential and nearest blood donors in real-time in accordance with hospital demands, the “MBB” application has been proven to be an effective solution for finding and storing compatible blood units in a smart hospital management system during an era of digital transformation.

Awards Won:
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