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Full Paper

# Determination of Human Blood Type Using Image Processing Techniques

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## Abstract

The undertaking of pre-transfusion tests is an essential task before the administration of a blood transfusion. It is through these tests that it is determined the blood profile compatible with the blood transfusion receiver. In certain emergency situations there is no time for performing the necessary tests with the available commercial systems and therefore it is administered the blood type O negative. This blood type is considered the universal donor, in the transfusion context, as it presents a lower risk of incompatibilities. However, even with the universal donor, transfusion reactions can occur in case of patients with different blood types. These incompatibilities can cause the death of the patient, depending on the severity of his or her health condition. This paper presents an electronic system and an interface application, able to perform all pre-transfusion tests quickly, easily, in safe conditions, and with high reliability, even in remote locations. To this end, the system is based on the plate test procedure and is of small dimensions being easy to carry. Another

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