Real Time Colour Perception Enhancement

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Abstract:

Colour blindness is the failure to distinguish colour differences under normal lighting conditions. It is a real issue which affects a significant portion of the population. It affects 1 in 12 men and 1 in 200 women or around 4.5 % of the entire world population. If the world population is estimated at 7 billion, around 315 million people suffer from some form of colour blindness. This is roughly 80 times the population of Ireland. Due to the significant number of people affected, a viable solution for real time colour perception enhancement is needed.

The proposed solution consists of a mobile application which performs colour recognition in real time using the phone's camera in conjunction with a hand held projector which displays the colour information. . The advantage of the projector is to not limit the users view to the phone's small screen size; however the application should still work without the projector.

Through rigorous testing it was found that the developed application can recognise a host of different colours in different lighting conditions making the application practical. The application is developed on the Android OS which powers 79 % of the mobile devices worldwide. This insures that the application will be accessible to a large number of users.

The accompanying report discusses the design, development and evaluation of the proposed solution.