



RESEARCH ARTICLE

EYE POWER ANALYSER USING EQUIPMENT INTEGRATED WITH CAMERA IN ANDROID DEVICE

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ABSTRACT

This is the idea in which we can analyse our eye power by our own android device. In this idea we use the sensors and the device which are used by the eye specialist. The main device which is used by the eye specialist auto refractor. The project makes the auto refractor machine in to small integrated part by using the instrumentation and control concepts and MATLAB concepts. We can make the auto refractor inbuilt in the android phone as small equipment and by using the camera module in the phone we can make our eye to focus in the camera and then the device which is inbuilt in the android sense our eye power exactly and the power of our eyes (short sight or long sight or nil power)and it functions by getting our eye biometric scan, the analyses is done here.

INTRODUCTION

Android application is one of the emerging trend in the computing world. Now a days every real time applications are made in to android application same way this leads the human to easily analyse their eye power by using their front camera in android device.

Basic architecture of eye power analyser in android

Auto refractor

An Auto refractor is the computerised control machine used during an eye examination provide an objective measurement of person's refractive error and prescription for the glasses or contact lenses. This is achieved by measuring how light is changed as it enters a person's eye.

Working

An auto refractor works by shining light into the eye and then measuring how it changes as it bounces off the back of the eye (the ocular fundus). The patient is shown an image that moves in and out of focus, taking several measurements of these reflections to determine when the eye is properly focused. When these figures are put together, it is clear what level of vision correction is needed for the patient to see at their best.

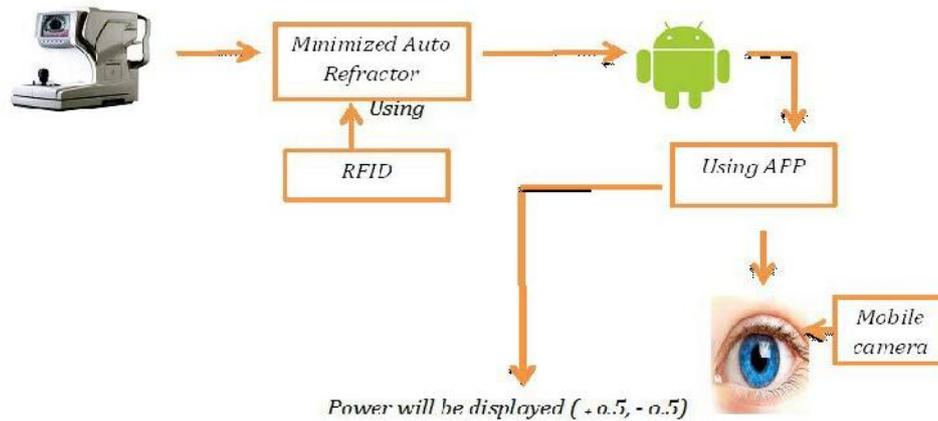
Types of auto refractor

At Coburn Technologies, we carry several different auto refractors, all of which are also keratometers. This simply means that in addition to determining the correct prescription, the machine will also measure the shape of the cornea. This measurement is crucial for diagnosing certain eye conditions, such as astigmatism or corneal distortion, and it is especially helpful for fitting contact lenses. Here is a quick look at our auto refractor lineup.

- The Huvitz CRK-7000 Auto Refractor is a precise machine that features an auto-start mode. It can sustain fogging throughout several measurements, making it perfect for children or any patient that has a hard time fixating on a target chart.
- The Huvitz HRK-7000A Auto Refractor is a more advanced auto refractor/keratometer that features a Retro-Illumination Mode to help the ophthalmologist detect abnormalities with the lenses, scratches on corneas, or cataracts. This auto refractor can also determine the sphere, cylinder, and axis measurements with precision.
- The Huvitz HRK-8000A Auto Refractor is the first auto refractor that offers a function that fits contact lenses. It allows the ophthalmologist to see the fluorescein liquid in blue illumination, as it analyzes the eye and simulates a lens fitting. This auto refractor features three-dimensional eye tracking and provides automatic recommendations.

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- The Huvitz HRK-9000A Auto Refractor is a high-end auto refractor/keratometer the features cutting edge technology to offer both the patient and the ophthalmologist an extraordinary experience. One of a kind, the HRK-9000A offers a Meibomian Gland Analysis function and Tear Film Break Up Time (TFBUT) measurement. Other features include Wireless Communication, full compatibility with all EMR Systems and Full Three Year Warranty.

Uses of auto refractor

Majority if the auto refractor calculates the vision correction a patient needs by using the sensors that defect the reflections from a cone of infrared light. These reflections are used to determine the size and shape of the ring at the back of the eye called retina. By measuring this zone the auto refractor can determine when a patient eye properly focuses an image. The instrument changes its magnification until the image come in to the focus.

Minimized auto refractor

The huge machine called auto refractor should be made in to the small device using RFID and some nano technology and the need to connected to the android device externally and then by using the device inbuilt and the app which is developed for the checking the eye power it is made possible.

Minimized auto refractor in android

The human eye should be placed in the camera in android phone so that the information about the eye and some physical

data of the eye is recorded by the auto refractor and the some calculations are performed and by using some techniques the eye power is analysed and the power is displayed via android application.

Conclusion

The project is purely based on the idea, it need some guide to implement and then we can easily analyse our eye power using this application. This provide a user a free eye check up.

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