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AI lens treatment recovery instrument

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Abstract: *In order to reduce the number of myopia population in China today, to help myopia patients take off their glasses and restore vision. AI lens treatment recovery instrument builds an image processing system through CMOS image sensor and DSP main control chip. Through systematic design, the image system, storage system, detection system and other systems coordinate work to detect vision and make corresponding vision restoration plans.*

Keywords: *AI lens therapy recovery instrument; CMOS image sensor; DSP main control chip; wireless connection mode; artificial blind massage; voice prompt*

1. Introduction

With the development of today's society and the progress of the times, mobile phones and computers have entered thousands of households. The biggest beneficiaries are the new generation of teenagers, and they are also the biggest victims. More and more adolescents are beginning to lose sight, and the myopia population accounts for 50% of the total population. In order to make those nearsighted people get rid of the inconvenience of wearing glasses, a treatment device is designed that can provide real-time treatment plans for myopia patients, connect with the mobile phone through wireless connection, and transmit the vision test results to the mobile phone for the convenience of the patients. Review without leaving home. Regular voice reminders for recovery treatment.

2. Hardware composition of AI lens treatment recovery instrument

AI lens treatment recovery instrument mainly includes image module, massage system, voice system, and detection system

2.1 Detection system

The detection system is the core system. The function of the detection system is extremely rich. The detection system will conduct a vision test, evaluate the recent strength status through a three-minute vision test, transmit the test results to the mobile phone and calculate the most reasonable treatment plan and massage plan, and give voice prompts through the voice system.

2.2 Image system

The detection result of the detection system is transmitted to the mobile phone in real time through the CMOS image sensor, and the detection data is sent to the mobile phone in cooperation with the Bluetooth mode.

2.3 Massage system

Through the transmission result of the detection system and the provided treatment plan, massage the human eye acupoints to achieve the effect of eye relaxation.

2.4 Voice system

Compare the test's strength result with the last test, and broadcast the comparison result to the patient in voice. I will divide the voice prompts into multiple types to facilitate the use of various groups of people. The voices of some cartoon characters will also be taken into it, which is convenient

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for some children to treat in happiness. At the same time, it will be equipped with a headphone access hole, which can effectively protect the privacy of patients.

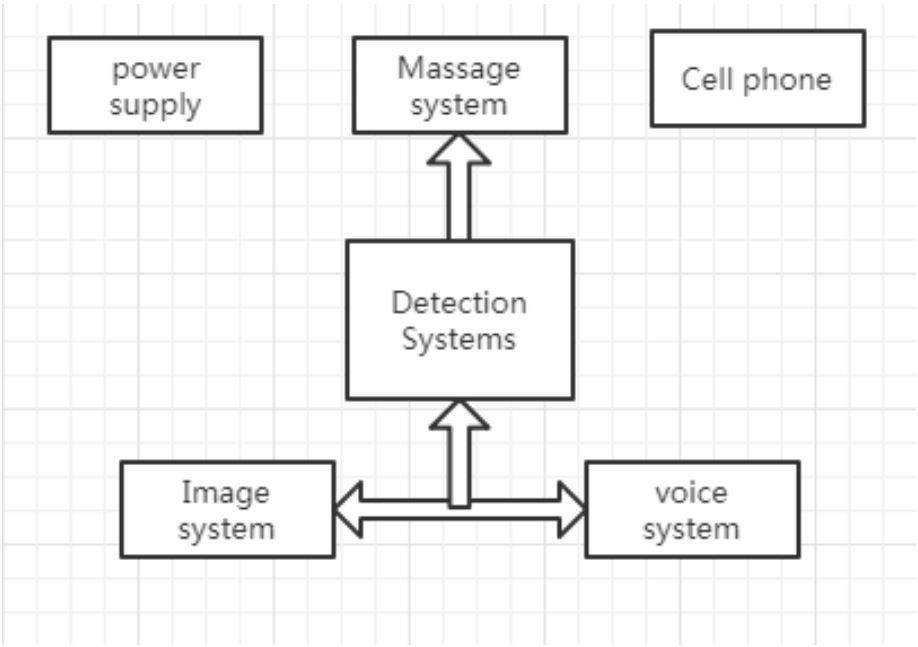

Figure 1 Hardware association

In addition to these major systems, it also supports external memory, which can be mentally relaxed during the treatment. It can also cooperate with some eye hospitals to implement home-based treatment. So that patients with myopia can get early recovery treatment.

3. Software composition of AI lens treatment recovery instrument

The main mode of the AI lens therapy recovery instrument is to accurately transfer information to the user's mobile phone and make a reasonable treatment plan. Use traditional Chinese medicine massage method for massage therapy, adopt wireless design, constant temperature hot compress, 9D deepen double-layer airbag.

3.1 Massage system

Adopts multi-section vibration, multi-frequency vibration and wave vibration. Focus on the eye acupuncture points, and independently vibrate the motor on the left and right sides.

3.2 Wireless design

It is easy to carry, there are 20000 mAh batteries inside, and it can be used continuously for ten days.

3.3 9D deepening dual-city airbag

The airbag inflates about 15mm to massage powerfully and more easily, and the full-wrapped eye massage is more suitable.

3.4 Constant temperature hot compress

Adjust the temperature according to the body temperature of different people, so that each user's eyes feel comfortable

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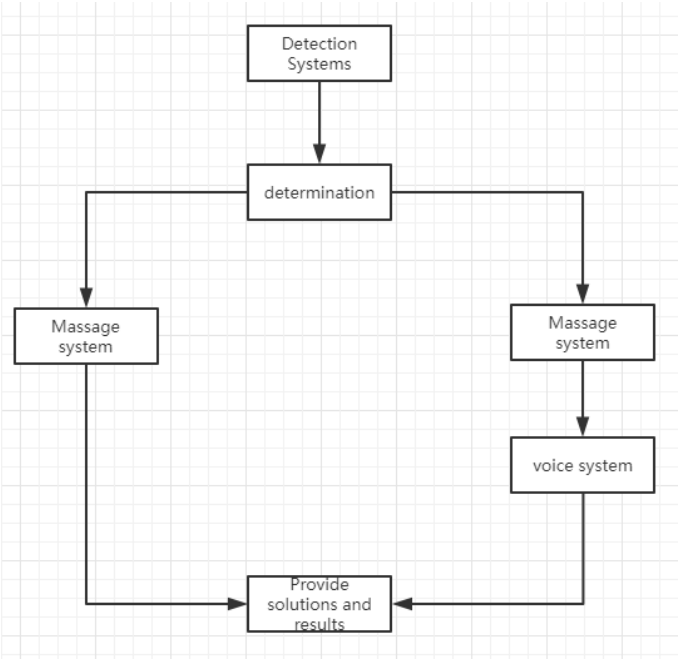

Figure 2 Software running

Through the mutual conversion between software systems, the user's eye condition and lens health condition are transmitted to the user in a simple form of data, so that the user can more intuitively understand the current health condition of their eyes and protect them in time. Treatment measures.

4. System test of AI lens treatment recovery instrument

When the AI lens treatment recovery instrument is working, it can successfully perform vision testing and real-time data transmission, and match with the mobile phone 10 times. The error rate of the output result is less than 5%, which is consistent with the expected result. Our team conducted 10 tests on the matching accuracy of the tester, and the accuracy was above 90%. After that, I tested the voice module of the tester 10 times, and the final output result was 95% identical to the tested result. There were 5 voice types, and the matching accuracy was more than 90%. Finally, the wireless connection was tested 15 times, and it was found that the mobile phone can successfully receive the tester's data and the suggested error rate of the recovery plan is less than 5%. The tester can also adjust the temperature of the body according to the body temperature to perform the eye Point massage. And contacted some experts from eye hospitals. Connecting headphones works well.

5. Conclusion

In order to improve the theoretical practicability of the AI lens therapy recovery instrument, we used CMOS image sensors and corresponding embedded vision technology, and used DSP chips to build the corresponding detection system. Through systematic design, the image system and the voice system and the wireless connection system can coordinate work to ensure the reliability of the use process. In order to prove the functional feasibility of the AI lens therapy recovery instrument, we tested its test analysis result processing ability. The results show that the AI lens therapy recovery instrument can accurately and effectively obtain the user's vision status, and through the voice system and mobile phone Receiving the results in real time achieves the goal of effectively protecting eyesight and achieving the goal of restoring eyesight.

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