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Devices that create opportunities for blind and partially blind people

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Abstract. Blind people face various problems in the process of receiving information as other people do. Many special devices have been developed to prevent these problems. This thesis explores the principles of operation of these devices in general

Keywords. Blind people, information technology, microcontroller, chip, voice technology.

I. Introduction.

Today, computer technology has penetrated into all areas. No matter what the field, it cannot develop without information technology. Each of us uses a variety of modern gadgets. We can get as much new information as we want at any time of the day. Our gadgets that give us information transmit basic information to us through our eyes. However, there is such a layer of the population that they face great difficulties in using such modern gadgets. The blind face great obstacles when it comes to using a telephone or a computer.

According to the World Health Organization, “70 percent of the world's blind are unemployed and 90 percent are illiterate. The main reason for this is that their access to technology is very low”. [1].

The biggest problem for blind people is that they can't read the flat notes we read, they get the information from specially created Braille notes with their fingers. This problem is already known. Scientists around the world have been working for years to create devices that convert flat writing into Braille. Many have tried to solve this problem by changing the flat recording to sound. Over the years, many converters and various room Braille displays have been created as a result of many attempts. The Braille display is a special device that allows a blind person to read. [2]. Depending on how many rooms it has, the data can be read by running your fingers. Scientists who have done research on sound have

developed devices that convert flat recordings into sounds. The data embedded in these devices resonates in the form of sound from special speakers. However, if there is a problem with the hearing of a blind person, the effectiveness of this device will be significantly reduced. [4]. The use of different sounds and tones in different languages also makes it difficult to create this type of converter.

Converting handwritten to Braille can be time consuming and can lead to many errors. That's why a special American standard code has been created for Braille translators to make things easier. (ACSII). [3]. Many of these devices now use the same standard code. Years of research have resulted in the creation of many special devices for the blind today:

- - Different room Braille displays (Frontier Computing, Visio Technology, ATRC, RINB);
- - Screen Readers (Ibsar, Freedom Scientific);
- - Braille card writers (Neovision, Sighted Electronics);
- - Screen magnifiers that magnify the information on the screen (Sensus, ATRC);
- - Special Braille keyboards (Mennens, Neovision, Holousek, Sighted Electronics);
- - Other auxiliary software packages and devices designed for the use of the blind only.



There are many such devices and software packages in the world. But these devices are so expensive that not everyone can afford them. We need to find cheaper ways to make such devices. In this way, we optimize these devices and increase their popularity.

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