



VOICE AND MEMS BASED PAGE TURNING ASSISTOR FOR DISABLED PEOPLE

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ABSTRACT: Physically challenged persons must rely on each page turn to read a book and they must exert more effort than typical people. To make page reading easier for disabled people We provided a solution in the form of a voice-assisted page turner to the people. Arduino, which takes voice commands as an input, and turner as the controller, and the motor mechanism as the output unit, the page that is required to be turned is done. When the user speaks his desired (direction) (Page must be turned) page name (next page or previous page) in front of the android phone which is connected to the Bluetooth module. The Bluetooth module is fed into the controller, which acts on it. The motor mechanism is set to turn the appropriate page. And if the person is speechless or having speech disorder, they can use their movement of one of their body parts to turn the page depends on the direction of the movement. MEMS Accelerometer is used to sense the movement of the body part and turn the page. As a result, the proposed article is a fantastic chance for anyone who could benefit from it.

KEYWORDS: [Arduino Nano, Bluetooth Module, MEMS Accelerometer.]

1. INTRODUCTION

Physically disabled or elderly persons have a hard time meeting fundamental needs like reading a book, and they rely on others to turn the pages for them. Some Turning-page gadgets, such as Page turners that can be operated manually and those that can be operated automatically- A manual page turner is made up of a stick that is held in one hand while the other is used to turn the pages. is maintained in the mouth or in the hand A rubber tip is on the stick. Enables the book's pages to slide more easily. This gadget is useful, User-unfriendly because it necessitates the use of one's lips and hands This is quite uncomfortable since it can cause damage to the mouth's corners. There's a lot of salivation as well. A page-turner that works automatically controllable motors.

So, this proposed system voice, movement-based page turning assistor for physically disabled people along with speech disorder aims at low cost and portability in use which should be operated at effort less for all kinds of disabled people.

2. OBJECTIVE

The main aim of this Voice & MEMS based page turning assistor isto make the page turning easier for the people who are differently abled. Physically disabled people must depend on other people for turning the pages while reading a book. So, to give a solution to this problem, a voice-based page turning is introduced. Here the pages turn to next page or previous page by simply giving the voice commands to the android phone which is connected to Bluetooth module. This command reaches to the Arduino nano and the motors which are connected will turn the page in required direction.

If the person is mute (having speech disorder) he/she may not be able to use their voice commands to turn the pages. So, for mute people, a movement-based page turning mechanism is provided. Here a MEMS accelerometer sensor is used to sense the movements of the person. According to their movement of any one of the body part, the pages will turn in the required direction.

3. LITERATURE SURVEY

Here we have taken some of the existing systems for voice-based page turning mechanism. Durga K Prasad Gudavalli, M Sai veerraju, I Swetha monica: They proposed a solution which is in the form of voice assisted page turner, which uses voicerecognition module as its input, Arduino as controller and motor mechanism set as output unit to turn required pages. When user speaks his required (direction in which page has to be turned) page name in front of micro phone of voice recognition module, the controller takes it as input and operates motor mechanism set to turn corresponding page.

Another reference we have considered is by HN Balachandra, S Jnaneshkumar, K Sanjay Nayak: They proposed a system which provides automatic page turning mechanism through voice commands. After turning the page, the content of the page should be read, for that, the whole page is scanned and read out to the user. Hence it useful for aged, disabled and blind people.

4. IMPLEMENTATION

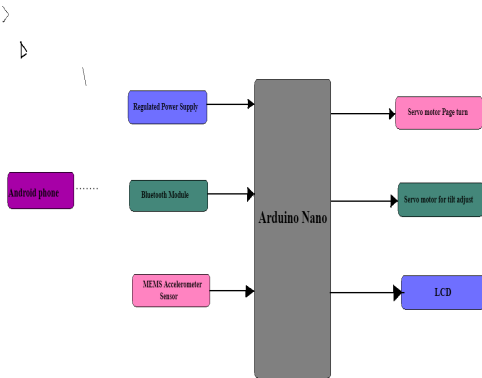


Figure 1: Block Diagram

This project model has use of Android phone in which the Bluetooth module is connected to the android phone to take voice commands to turn the page. If the person wants to turn the page to the “next page” he /she may give the voice commands through the android phone which is connected to the Bluetooth module. Similarly, if the person wants to turn the page to “previous page” he/she may give the voice commands.

The MEMS accelerometer is also connected to Arduino nano for the system to be operated in movement-based page turning mechanism. If the Arduino nano receives the commands, then the motor mechanism starts to turn the page in the required direction. The servo motor tilt is to lift the page that is to be turned in the required direction.

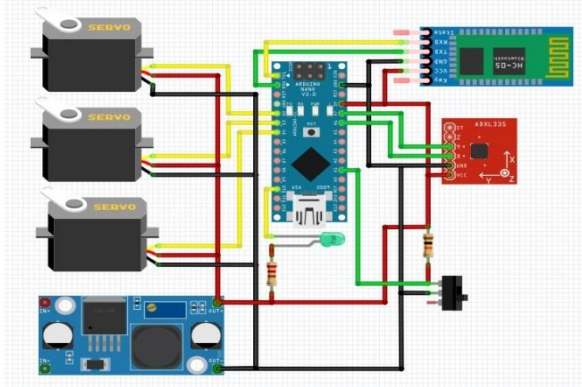


Figure.2:CircuitDiagram

5. RESULT

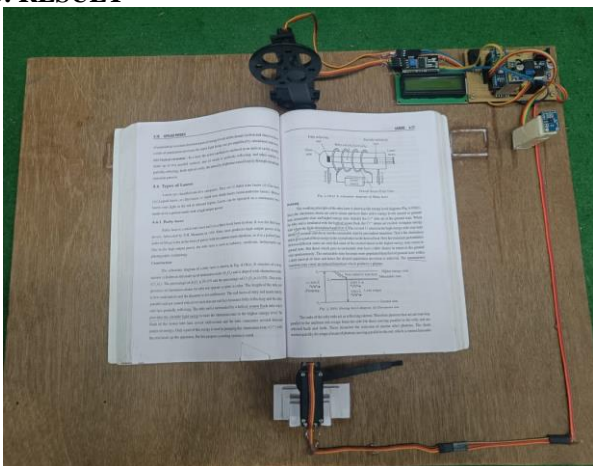


Figure 3: Top view of proposed prototype

CONCLUSION AND FUTURE SCOPE

Conclusion

The working model of page turning assistor for disable people is an excellent application that who could not move their hands and wish to read books. Since it uses voice commands as input, it avoids other support and strain in turning pages. This model was tested in various cases; such as price, size, efficiency, simplicity, and understandability of operation for illiterate people and it proved to be a best choice for differentially abled who could read a book by using voice commanded page reading. This model helps the people who are Mute, mute persons cannot use their voice to operate this model. So, to have a solution for Mute people, in this model the person who is mute can use their one of the body part movements to turn the page. To implement this function, a MEMS Accelerometer sensor is used to sense their body part movement and according to that movement the pages will turn.

Future Scope

In future the system be able to provide assistance to blind people by reading out the text in the book. The text in the book is scanned by the camera and read out by using speaker. And the page turning mechanism is same as the voice and Mems based page turning mechanism. As in the proposed system there is a solution for disabled people as well as for the people who are having speech disorder. So, in future there will be a solution for blind people also. The system provides feature of adjustable book position with the voice commands in future.

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