DEVELOPMENT OF INTEGRATED PROTOTYPE ASSISTIVE AID FOR BLIND, DEAF AND MUTE.

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Abstract Communication is one of the biggest medium for conveying our thoughts to other person. But nowadays it seems to be very common that peoples suffering from communicating between various physically changed persons. Nowadays we are seeing that there in no way to communicate with the physically challenge people. They can't be able to communicate with each other. A recent survey of the World Health Organization shows that, about 285 million people in the world are being blind and 300 million people are deaf on the other hand almost 1 million are being dumb. But there are no such communication for these people to communicate among themselves. In this project, we proposed a new system-prototype which will help to provide communication between the physically challenged people as well as normal people.

I.INTRODUCTION

Since the beginning of 20th century, various devices have been created in order to help visually challenged people to read books. Some of the initial works, according to the literature, are the Optophone and Optacon, which use a sensory substitution to translate the black and white text into time-varying chords of tones. Nowadays, smartphone applications and more advanced devices -which are also wearable- have been developed in order to help visually challenged people to read text material by using OCR (Optical Character Recognition) and TTS (Text To Speech) technologies.

Sign language is the only essential communicating tools, for deaf and dumb people. To ensure an independent life for hearing impaired and mute people, the automatic interpretation of sign language is an extensive era of research. Using sign languages, deaf and mute people can communicate among themselves but they find it tough to face the outside world.

In this system we proposed a prototype which captures the text with the help of a camera module which will later converted into a mp3 format with help of Text to Speech technology which was done by using a Raspberry Pi microprocessor and Python codes. Also we have done conversion system which will be used for a communication between deaf and blind. In this model a sensor called force sensing resistor is used for a input values which we can control with the help of our thumb impressions variations and the corresponding messages will be played in the speaker for the respective thumb impressions.

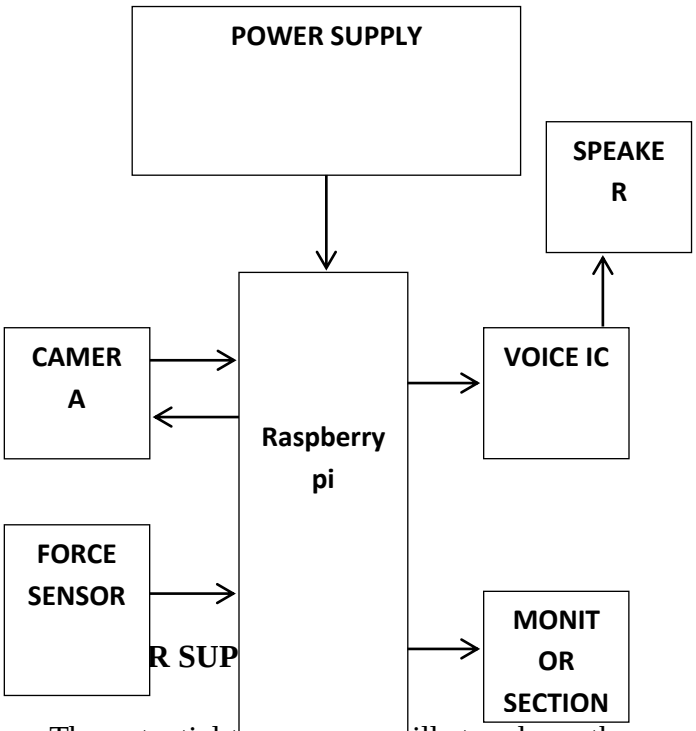
II.LITERATURE SURVEY

A desktop human computer interface application that is used to facilitate communication between normal, "deaf/dumb" and blind people. SVBiComm system helps blind person to hear voice saying the word gestured by the" deaf/dumb" while the deaf will receive a gesture representing the word said by the blind. SVBiComm works in two directions, the first direction is processing from video to speech. The animated word gestures are mapped with

language knowledge base into text. Then, the relevant audio is generated using Text-to-Speech (TTS) API. The second direction is processing from speech to video. The voice from blind is converted into its corresponding text using Speech-to-Text (STT) API. Then, the natural language is mapped from the database to "deaf/dumb" in a relevant sign language form by using a 3D graphical model. The system was evaluated using a set of 113 sentences with 244 signs.

III.PROPOSED SYSTEM

This block diagram describes Model B and B+; Model A, A+, and the Pi Zero are similar, but lack the Ethernet and USB hub components. The Ethernet adapter is internally connected to an additional USB port. In Model A, A+, and the Pi Zero, the USB port is connected directly to the system on a chip (SoC). On the Pi 1 Model B+ and later models the USB/Ethernet chip contains a five-port USB hub, of which four ports are available, while the Pi 1 Model B only provides two. On the Pi Zero, the USB port is also connected directly to the SoC, but it uses a micro USB (OTG) port.



The potential t ill step down the power supply voltage (0-230V) to (0-6V) level. Then the secondary of the potential transformer will be connected to the precision rectifier, which is constructed with the help of op–amp. The advantages of using precision rectifier are it will give peak voltage output as DC, rest of the circuits will give only RMS output.

WEB CAMERA

Active WebCam captures images up to 30 frames per second from any video device including USB cameras, Analog cameras connected to capture card, TV-boards, camcorders with FireWire (IEEE 1394) interface and from Network cameras.

FORCE SENSOR

FlexiForce force sensors are ultra-thin and flexible printed circuits, which can be easily integrated into force measurement applications. FlexiForce sensors are available off-the-shelf, or can be customized for unique product designs.

FlexiForce sensors measure force between almost any two surfaces and are durable enough to stand up to most environments. FlexiForce sensors are ideal for integrating into OEM products because their thin, flexible profile allows them to measure forces where larger, bulkier technologies can not.

BRIDGE RECTIFIER

When four diodes are connected as shown in figure, the circuit is called as bridge rectifier. The input to the circuit is applied to the diagonally opposite corners of the network, and the output is taken from the remaining two corners.

Let us assume that the transformer is working properly and there is a positive potential, at point A and a negative potential at point B. the positive potential at point A will forward bias D3 and reverse bias D4.

The negative potential at point B will forward bias D1 and reverse D2. At this time D3 and D1 are forward biased and will allow current flow to pass through them; D4 and D2 are reverse biased and will block current flow.

The path for current flow is from point B through D1, up through RL, through D3, through the secondary of the transformer back to point B. this path is indicated by the solid arrows. Waveforms (1) and (2) can be observed across D1 and D3.

One-half cycle later the polarity across the secondary of the transformer reverse, forward biasing D2 and D4 and reverse biasing D1 and D3.Current flow will now be from point A through D4, up through RL, through D2, through the secondary of T1, and back to point A. This path is indicated by the broken arrows. Waveforms (3) and (4) can be observed across D2 and D4. The current flow through RL is always in the same direction. In flowing through RL this current develops a voltage corresponding to that shown waveform (5). Since current flows through the load (RL) during both half cycles of the applied voltage, this bridge rectifier is a full-wave rectifier.

One advantage of a bridge rectifier over a conventional full-wave rectifier is that with a given transformer the bridge rectifier produces a voltage output that is nearly twice that of the conventional full-wave circuit.

I.V WORKING

The raspberry Pi is interfaced with a switch which is connected to the camera that enables us to automatically connect and disconnect the device on reading the printed text on the paper. The raspberry pi works on the internet and without internet. This gices command to the camera while capturing the text in printed form and it converts by tts process.

V. RESULT

Thus the developed prototype will convert the text to speech and the analog pressure values into corresponding messages in an efficient manner.

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