S. S. Mayekar, P. C. Pandey, and R. K. Shevgaonkar, A text-to-speech converter for reading aid for the blind, Proc. National Conference on Biomedical Engineering 1998 (NCBME 1998), Manipal, Karnataka, India, pp. VII.4-6

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***Abstract* - A reading aid for the blind consists of a scanner for obtaining the digital image of the text, a system for segmenting and recognizing the characters of the text, a converter from text character stream to phonetic representation stream, and a speech synthesizer. A character segmenter-recognizer and a speech synthesizer, for printed Hindi text in Devanagari, has been developed.**

Text image processing identifies the characters and "*matras*" in the image file obtained from a scanner. The image is segmented into basic characters and *matras*. Segmentation is done on the basis of pixel density in the hierarchy of lines, word boundaries, characters and letters and *matras*. These segments are identified by a character recognition algorithm, which compares the segmented image with a set of templates, and we get a stream of character codes, which is converted into a stream of allophone codes. Speech synthesis is achieved by using a synthesizer chip SPO-256-AL2, that internally uses a formant based synthesis and has formant tracks for 64 English allophones. The control of the synthesizer chip is handled by an inexpensive microcontroller (AT89C2051), with a serial port interface for connecting to a computer. A program helps in selecting the appropriate set of English allphones to correspond to the allophone of Hindi.