

Product Label Reading Using Sift Algorithm to Assist Visually Impaired

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ABSTRACT

To assist the visually impaired people to read product label with the help of webcam of a laptop by using SIFT (Scale Invariant Feature Transform) algorithm under MATLAB platform. We have to place label in front of webcam and text on the label is generated as audio signal. Label name is identified, processed and compared with pre saved database.

1. INTRODUCTION

The paper aims at designing a system to recognize text on a product label using SIFT [3]. The web camera of laptop captures the text. Visually impaired people can identify text on the label by hearing it. So we have to create a predefined database, once we scan the label with a webcam it scans the text and compares with predefined database [4]. If the image is matched with database then text on label is generated in the form of audio signal [5].

2. IDEA OF SIFT

In, SIFT algorithm key points of objects are extracted from a given image and compared with stored images in the database [1]. An object is recognized in a new image by individually comparing each feature from the new image to this database based on the Euclidean distance between their feature vectors [2]. Image content is transformed into local feature coordinates that are invariant to translation, rotation, scale and other image properties. These parameters are compared with all images in data set and finds for exact match. As shown in Figure1, an image is fed to the system, new image and base images in database SIFT Feature detection takes place, after comparison the correct image text is fed to speaker.

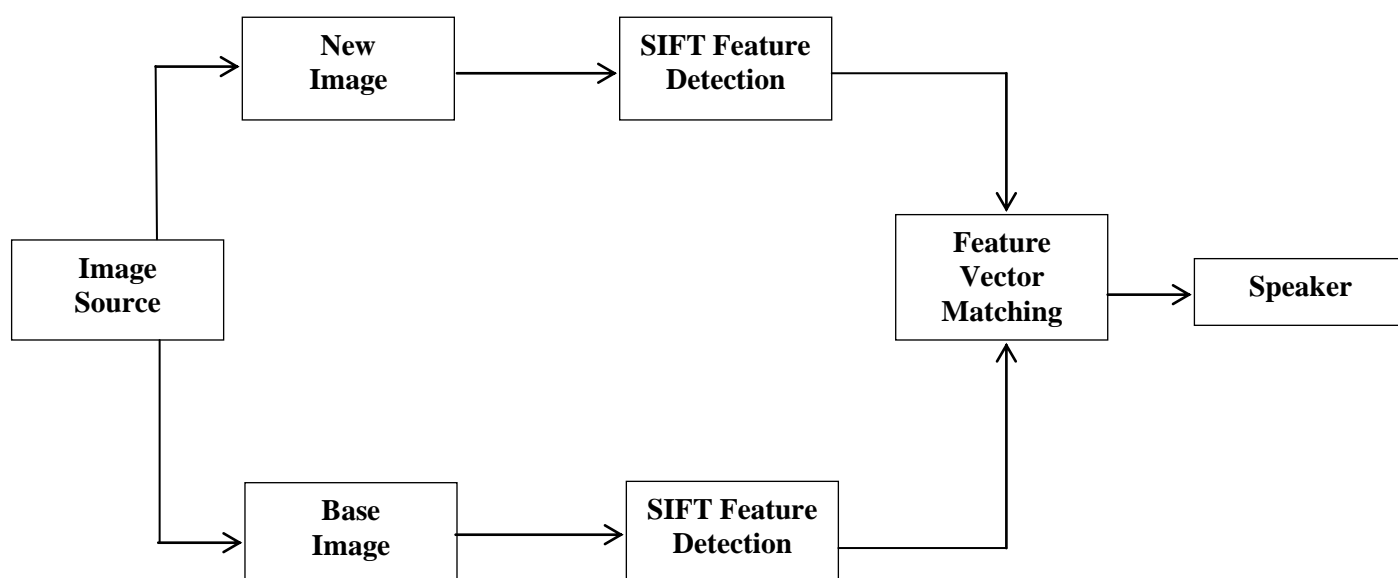


Figure1: Block Diagram of SIFT

3. RESULTS

This system was designed such that text on a label is recognized and compared with images in database and original image is identified and an audio signal is generated which assists the visually impaired people to identify name on label by using SIFT algorithm on MATLAB platform. As shown in Figure 2, we have to place product label in front of webcam after that, by selecting capture and identify buttons it compares given label with images stored in database and finally match the output, after that name on the label will be generated as audio signal.

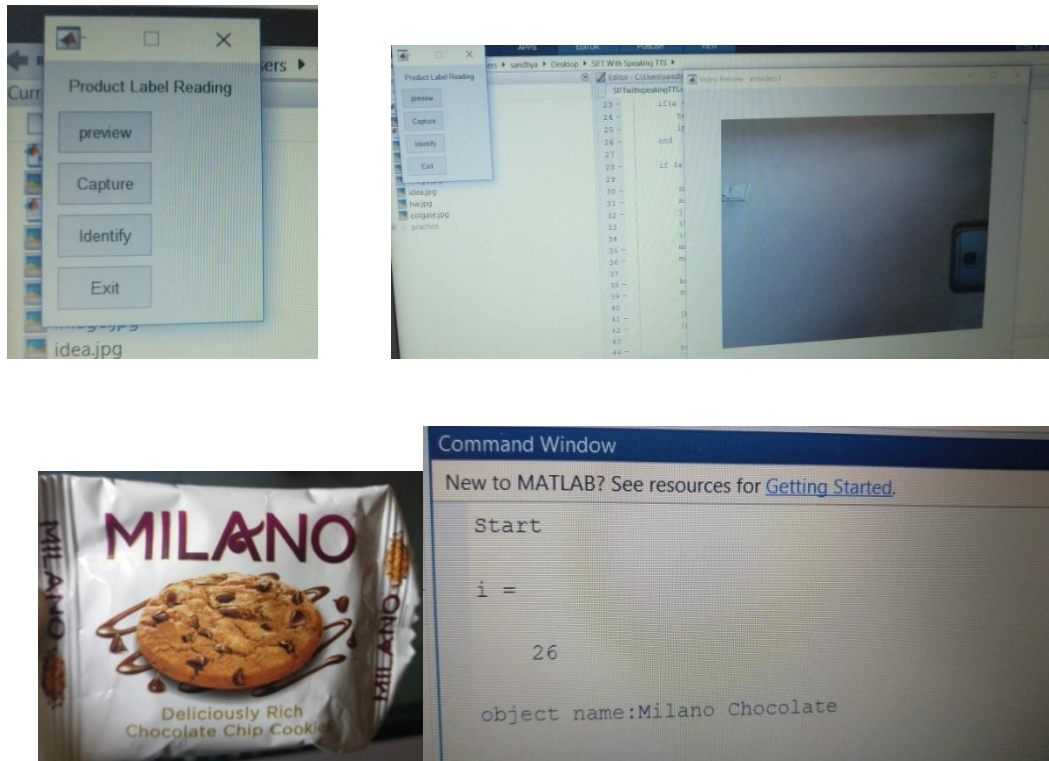


Figure 2: Output of the Product Label Reading Using SIFT Algorithm

4. CONCLUSION AND FUTUTRE WORK

This paper proposes a system “**PRODUCT LABEL READING USING SIFT ALGORITHM TO ASSIST VISUALLY IMPAIRED**” by which blind people can identify text on a label in the form of audio signal. In order to further enhance the effectiveness of this algorithm, a Kalman filter could be used to better estimate the future position of the object in the video feed. This would significantly enhance the speed of the SIFT algorithm because only possible locations of where the object could be in the next frame, need to be processed. The work done on this algorithm could be extended so that multiple objects could be simultaneously tracked.

5. REFERENCES

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