Mobile-based Sign Recognition and Translation for Turkish Language

Description

Sign is an important communication medium representing a connection between itself and its object [1]. Signs include names (such as street, building, company, etc.), information (such as designation, direction, safety advisory, warning, notice, etc.), commercial (announcement, advertisement, etc.), traffic (such as warning, limitation, etc.) and conventional symbols which are not international that can be confusable to a foreign tourist [2]. While signs are very beneficial in conveying information, they can lead to several problems. For instance, a tourist in a forign country may not understand what the sign indicates written in another language.

The **aim of this project** to develop a mobile-based system that can recognize a sign input in Turkish language from an image captured by a mobile phone, and translate the sign into English by detecting the text used in sign. Figure 1 shows a set of signs in Turkish.

Figure 1: Some examples of signs in Turkish.

Using image processing algorithms, the mobile system should extract the text in the sign image captured by the mobile device, and recognize the text. Then, the recognized text is translated to English using Google Translate API [4]. Finally, translated text must be overlayed onto the original image. Figure 2 shows resulting translations in Spanish and Thai [3] [4].

References

[1] Sign, `http://en.wikipedia.org/wiki/Sign`.

[2] J. Yang, J. Gao, Y. Zhang, X. Chen, A. Waibel, "An Automatic Sign Recognition and Translation System", Proceedings of the Workshop on Perceptive User Interfaces (PUI'01), pp. 1-8, 2001.

[3] V. Fragoso, S. Gauglitz, "TranslatAR: A Mobile Augmented Reality Translator on the Nokia N900", IEEE Workshop on Applications of Computer Vision (WACV), pp. 497-502, Jan 5-7, 2011.

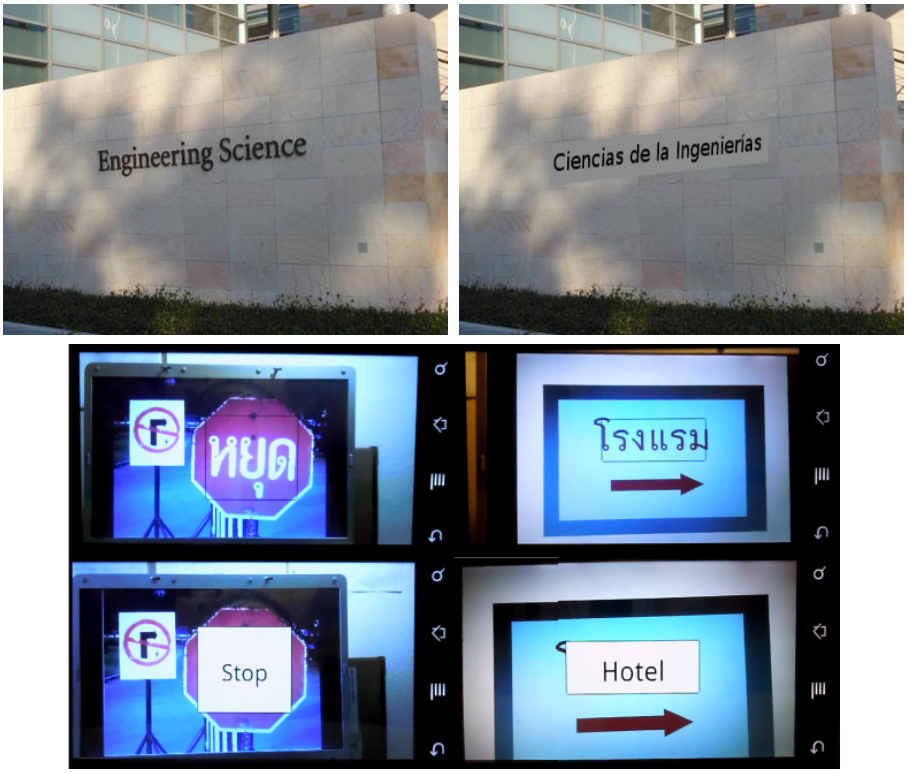

Figure 2: Samples of resulting translations in Spanish (up) and Thai (down) [3] [4].

[4] T. T. D. Rubira, "Mobile Sign Translator for the Thai Language", Department of Electrical Engineering, Stanford University.

[5] Google Translate API, `https://developers.google.com/translate`.