**Title of the Project**  : Biometric Finger Veins Authentication

using Deep Learning Algorithm

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**ABSTRACT**

The target of this project was the design and development of a finger vein identification system that could be used by a limited number of users in a networked environment. Finger vein authentication can be a leading biometric technology nowadays in terms of security and convenience, since it introduces the features inside the human body. An image of a finger captured by the web camera under the IR light transmission contains not only the vein pattern itself, but also shade produced by various thickness of the finger muscles, bones, and tissue networks surrounding the vein. We introduce preliminary process to enhance the image quality worsened by light effect and noise produced by the web camera, then segment the vein pattern by using adaptive threshold method and matched them using improved template matching. The experimental result shows that even the image quality is not good, as long as our veins are clear and also with some appropriate process it still can be used as the means of personal identification. Such tools include image acquisition, pre-processing, feature extraction and matching methods to extract and analyze object patterns.