

## **Patent Summary**

The IIT Indore patent on “A FINGERPRINT ACQUISITION SYSTEM FOR ANTI-THEFT FINGERPRINT BIOMETRY AND METHOD THEREOF” is granted by the Patent Office, Government of India. The inventors Dr. Amit Chatterjee, and Prof. Vimal Bhatia from the Indian Institute of Technology Indore, and Prof. Shashi Prakash from IET DAVV, have proposed a novel image acquisition and processing unit for processing said fingerprint images to detect a match with a stored fingerprint data to perform a fingerprint matching, and said image acquisition and processing unit perform a biometric spoof detection by processing said time-series dynamic speckle image patterns, wherein a series of time-separated (0.05 seconds) speckle patterns recorded by using said image acquisition and processing unit. The technical problem addressed by the invention is to provide a fingerprint acquisition system for antitheft fingerprint biometry.

A fingerprint pattern unique to each individual is registered in the storage device of the authentication system, there may be a sense of rejection because there is a risk of personal information leakage. However, when the authentication method using speckle as in the present disclosure is used, the fingerprint pattern is not stored as it is, but speckle patterns with various interference fringes are stored according to location information such as the distance or angle between the fingerprint and the detector. Rejection may be relatively less compared to the fingerprint authentication method. Also, the inventors calculated the location information of the object by a speckle pattern generated by the light irradiated to the object. When the location information of the speckle pattern measured by the detector and the location information of the stored speckle pattern are substantially the same, the speckle-based authentication method compares the measured speckle pattern and the stored speckle pattern.

## **For Immediate Release:**

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## **Grant of Patent from Electrical Engineering Department, IIT Indore**

### **Details:**

Indian Patent Application No.- 201721024430

Grant No.- 376417

Filing Date- July 11, 2017

Date of Grant- August 02, 2021

Title- A FINGERPRINT ACQUISITION SYSTEM FOR ANTI-THEFT FINGERPRINT BIOMETRY AND METHOD THEREOF

Inventors- Dr. Amit Chatterjee, Prof. Vimal Bhatia, and Prof. Shashi Prakash

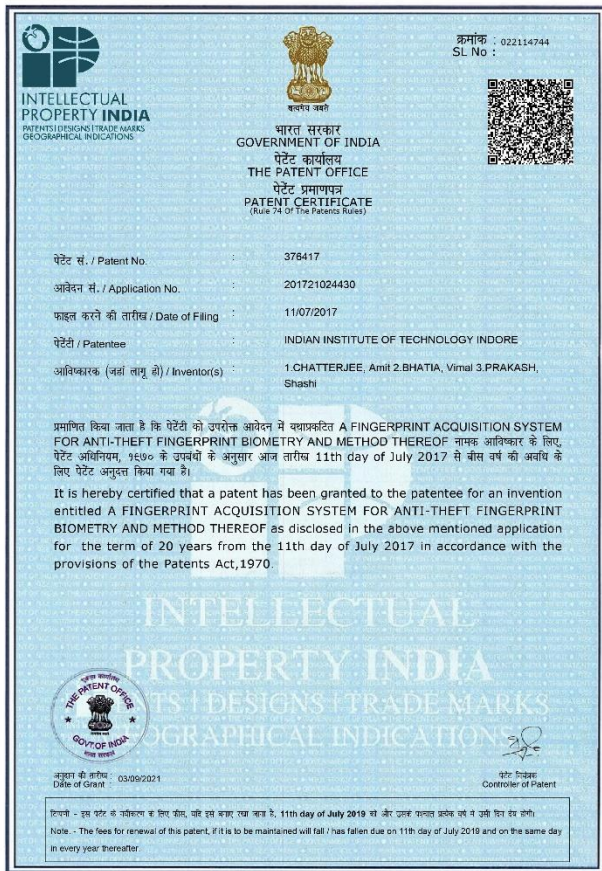
The IIT Indore patent on “A FINGERPRINT ACQUISITION SYSTEM FOR ANTI-THEFT FINGERPRINT BIOMETRY AND METHOD THEREOF” is granted by the Patent Office, Government of India. The inventors Dr. Amit Chatterjee, Prof. Vimal Bhatia and Prof. Shashi Prakash from the Indian Institute of Technology Indore have proposed the novel image acquisition and processing unit for processing said fingerprint images to detect a match with a stored fingerprint data to perform a fingerprint matching, and said image acquisition and processing unit perform a biometric spoof detection by processing said time-series dynamic speckle image patterns, wherein a series of time-separated (0.05 seconds) speckle patterns recorded by using said image acquisition and processing unit. The technical problem addressed by the invention is to provide a fingerprint acquisition system for antitheft fingerprint biometry.

In the case of a fingerprint authentication method used as a general authentication method, since a fingerprint pattern unique to each individual is registered in the storage device of the authentication system, there may be a sense of rejection because there is a risk of personal information leakage. However, when the authentication method using speckle as in the present disclosure is used, the fingerprint pattern is not stored as it is, but speckle patterns with various interference fringes are stored according to location information such as the distance or angle between the fingerprint and the detector. Rejection may be relatively less compared to the fingerprint authentication method. Also, the inventors calculated the location information of the object by a speckle pattern generated by the light irradiated to the object. When the location information of the speckle pattern measured by the detector and the location information of the stored speckle pattern are substantially the same, the speckle-based authentication method compares the measured speckle pattern and the stored speckle pattern.

**Dr. Amit Chatterjee** completed his Ph.D. from IIT Indore in 2021.

**Professor Vimal Bhatia** is currently working as professor at the Indian Institute of Technology Indore. His research interests are in the broader areas of Wireless and Optical Communications, AI/Machine Learning, Signal Processing applications in telecommunications, optics, RADAR and in software product development.

**Professor Shashi Prakash** is currently working as professor at the Institute of Engineering and Technology Indore. His current research interest is optical metrology, laser-based instrumentation and optical networks.



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भारत सरकार  
GOVERNMENT OF INDIA  
पेटेंट कार्यालय  
THE PATENT OFFICE  
पेटेंट प्रमाणपत्र  
PATENT CERTIFICATE  
(Rule 24 of The Patents Rules)

क्रमांक : 022114744  
SL No :

पेटेंट सं. / Patent No. : 378417  
आवेदन सं. / Application No. : 201721024430  
फाइल करने की तारीख / Date of Filing : 11/07/2017  
पेटेंटी / Patentee : INDIAN INSTITUTE OF TECHNOLOGY INDORE  
अविष्कारक (बनों लागू हो) / Inventor(s) : 1.CHATTERJEE, Amit 2.BHATIA, Vimal 3.PRAKASH, Shashi

प्रमाणित किया जाता है कि पेटेंटी को उपरोक्त आवेदन में ब्यक्त A FINGERPRINT ACQUISITION SYSTEM FOR ANTI-THEFT FINGERPRINT BIOMETRY AND METHOD THEREOF नामक अविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबन्धों के अनुसार आज तारीख 11th day of July 2017 से बीस वर्षों की अवधि के लिए पेटेंट अनुदान किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled A FINGERPRINT ACQUISITION SYSTEM FOR ANTI-THEFT FINGERPRINT BIOMETRY AND METHOD THEREOF as disclosed in the above mentioned application for the term of 20 years from the 11th day of July 2017 in accordance with the provisions of the Patents Act,1970.

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संज्ञा की तिथि : 03/09/2021  
Date of Grant

डॉ. प्रकाश  
Controller of Patent

ध्यान - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाय है, 11th day of July 2019 से और उसके तालत प्रत्येक वर्ष में उसी तिथि तक होगी।  
Note - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 11th day of July 2019 and on the same day in every year thereafter



**Dr. Amit Chatterjee**



**Prof. Vimal Bhatia**



**Prof. Shashi Prakash**