

**Universiti Teknologi MARA**

**User Authentication for Mobile Devices  
Using Motion Sensors Based on Moore's  
Neighborhood**

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## **ABSTRACT**

Smartphones has become one of the most important device for most people. It is an all-in-one device which helps the productivity of a person. However, the smartphone also is a personal device which means it contains a lot of confidential data. Therefore it needs some kind of protection to avoid unauthorized access to the data inside. The current methods of authentication are not secure enough to protect data from malicious users. This project aims to create an authentication method that is secure enough against unauthorized access and at the same time will not burden the user. The project is proposing the use of motion gestures, a type of behavioral biometrics as a method of authentication for smartphones as they are unique. In order to authenticate a user by their behavioral biometrics, their pattern of behavior need to be calculated and measured. This is where an algorithm based on Moore's Neighborhood concept is used to measure the similarity of the current gesture recorded to the real user gesture saved inside the smartphone. The project will also use a two-step authentication method to improve the reliability of the authentication process. Initial results indicate that the algorithm applied can be used to authenticate motion gestures with decent accuracy.

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