

## **CERTIFICATE**

This is to certify that the project entitled “**Strengthening User Authentication Using Keystroke Dynamics**” is a bonafide work of **Akshat Shah (60004120089), Hitarth Shah (60004120094), Parth Shah (60004120101)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of B.E. in Computer Engineering

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## Project Report Approval for B.E.

This project report entitled “*Strengthening User Authentication Using Keystroke Dynamics*” by *Akshat Shah (60004120089)*, *Hitarth Shah (60004120094)*, *Parth Shah (60004120101)* is approved for the degree of *B.E. in Computer Engineering*.

Examiners

1.-----

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Place:

## Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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## **ABSTRACT**

Keystroke Dynamics has been heavily researched over many years. Despite the large activity there are very few real world implementations using Keystroke Dynamics as an authentication mechanism. The fact that smart phones regularly store private, sensitive and classified information makes it very important that we can confidently identify their users. Traditionally, this has been achieved through password authentication systems. However, these systems are far from perfect. For instance, if a password becomes compromised, it is no longer adequate for authenticating its rightful owner. In the hope of improving this, keystroke dynamics provide a second level of security in identifying its rightful users. Keystroke dynamics is a relatively new method of biometrics and provides a comparatively inexpensive and unobtrusive method of strengthening the user authentication process. It does not require any additional hardware as it uses the existing keyboard to measure keystroke dynamics. The term keystroke dynamics is used to describe an individual's typing pattern, latencies, key depress duration and keystroke pressure. This pattern is fairly unique to each individual.

The common models used to identify keystroke dynamics are statistics-based methods, machine learning algorithm, distance methods however adding more features make these models more complex and are difficult to comprehend. The proposed system aims to utilize a neural network specifically a back propagation network which is initially trained against user inputs during the enrolment phase. During the testing phase, it uses the training data to classify a user as legitimate or fake.

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