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Computers and Security
Volume 85, August 2019, Pages 1-24

Recent advances in mobile touch screen security authentication methods: A systematic literature review (Review)

Ibrahim, T.M.^a, Abdulhamid, S.M.^b, Alarood, A.A.^c, Chiroma, H.^d, Al-garadi, M.A.^e, Rana, N.^f, Muhammad, A.N.^g, Abubakar, A.^h, Haruna, K.ⁱ, Gabralla, L.A.^j

^aDepartment of Information Technology, National Open University of Nigeria, Nigeria
^bDepartment of Cyber Security Science, Federal University of Technology, Minna, Nigeria
^cDepartment of Computer Science, University of Jeddah, Saudi Arabia

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Abstract

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The security of the smartphone touch screen has attracted considerable attention from academics as well as industry and security experts. The maximum security of the mobile phone touch screen is necessary to protect the user's stored information in the event of loss. Previous reviews in this research domain have focused primarily on biometrics and graphical passwords while leaving out PIN, gesture/pattern and others. In this paper, we present a comprehensive literature review of the recent advances made in mobile touch screen authentication techniques covering PIN, pattern/gesture, biometrics, graphical password and others. A new comprehensive taxonomy of the various multiple class authentication techniques is presented in order to expand the existing taxonomies on single class authentication techniques. The review reveals that the most recent studies that propose new techniques for providing maximum security to smartphone touch screen reveal multi-objective optimization problems. In addition, open research problems and promising future research directions are presented in the paper. Expert researchers can benefit from the review by gaining new insights into touch screen cyber security, and novice researchers may use this paper as a starting point of their inquiry. © 2019

SciVal Topic Prominence

Topic: Authentication | Biometrics | Implicit authentication

Prominence percentile: 96.367

Author keywords

Biometric security Graphical password Mobile device security Natural algorithms PIN based authentication Touchscreen gesture/pattern

Indexed keywords

Engineering controlled terms: Authentication Biometrics Mobile security Multiobjective optimization Smartphones Taxonomies

Engineering uncontrolled terms: Authentication techniques Biometric security Future research directions Graphical password Mobile device security Multi-objective optimization problem Security authentication Systematic literature review

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The authors will like to acknowledge Tetfund Institutional Based Research Grant, Federal College of Education (Technical), Gombe. Tahir Musa Ibrahim is currently a logistics manager at Jos Electricity Distribution Plc, Bauchi Trading Zone, since 2014. He received his B.Sc. Computer Science degree in 2011, from a private university; Kwararafa University, Wukari, Taraba State, Nigeria. He is also currently pursuing his M.Sc. degree in Information Technology at National Open University, Nigeria. His current research topic is, recent advances on mobile touch screen security authentication methods: A systematic Literature Survey. He is also a member of International Project Management Professionals (IPMP). Shafi'i Muhammad Abdulhamid received his Ph.D. in Computer Science from Universiti Teknologi Malaysia (UTM), MSc in Computer Science from Bayero University Kano (BUK), Nigeria and a Bachelor of Technology in Mathematics/Computer Science from the Federal University of Technology Minna, Nig... View all ✓

ISSN: 01674048

CODEN: CPSED

Source Type: Journal

Original language: English




DOI: 10.1016/j.cose.2019.04.008

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🔍 Chiroma, H.; Department of Computer Science, Federal College of Education (Technical), Gombe, Nigeria;
email:freedonchi@yahoo.com

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