Near-Field Communication Wallet

Faruk Ozkan*, Ömer Aydın[2]
[1] *Dokuz Eylül University, Computer Engineering, Izmir, Turkey*
ORCID ID 0000-0001-6665-2691
[2] *Manisa Celal Bayar University, Electrical and Electronics Engineering, Manisa, Turkey*
ORCID ID 0000-0002-7137-4881
(faruk.ozkan@ceng.deu.edu.tr)

Abstract – In this study, a payment system has been tried to be designed by considering the advantages of NFC. As is known, security in payment systems is of great importance. These are the dangers that attackers can capture, change or use payment information for different purposes. It is of great importance to design a system that will operate smoothly against these dangers. On the other hand, there are important advantages of using an NFC-enabled mobile phone for payment transactions. For this reason, in this study, it has been tried to perform a secure payment transaction through an application developed on a mobile phone. While doing this we use an NFC portable and has version 4.4 or above Android phone, an NFC card, Firebase database that presented by Google and tokenization. We can simply define tokenization as placing a random string with your credit card number. First of all, we need to download the application to our phones. The phone will act as a POS machine with this application. Users can use the phone as a POS and can make transactions using it. In this system even if someone access to database only thing they will see going to be a random string number that is useless. We can say that the system will meet the requirements in terms of security and privacy.

Keywords – NFC, POS, contactless, payment system, security and privacy

ICAENS 2021

1 st International Conference on Applied Engineering and Natural Sciences

November 1-3, 2021 : Konya, Turkey

Proceeding Book

1 st International Conference on Applied Engineering and Natural Sciences

November 1-3, 2021, Turkey

Typesetting

Assoc. Prof. Dr. Umut ÖZKAYA

Cover Design

Assoc. Prof. Dr. Umut ÖZKAYA

Editors

Assoc. Prof. Dr. Umut ÖZKAYA

ISBN: 978-625-00-0389-3

National Organizing Committee

Prof. Dr. Adnan Sözen, Gazi University

Prof. Dr. Murat Yakar, Mersin University, Turkey

Assoc. Prof. Dr. Enes Yiğit, Uludağ University

Assoc. Prof. Dr. Halit Öztekin, Sakarya Applied Science University

Assoc. Prof. Dr. Harun Kemal Öztürk, Pamukkale University

Assoc. Prof. Dr. Merih Palandöken, İzmir Katip Çelebi University

Asst. Prof. Dr. Umut Özkaya, Konya Technical University

Dr. Şaban Öztürk, Amasya University

International Organizing Committee

Prof. Dr. Josep Guerrero, Aalborg University

Prof. Dr. Carlos A. Coelho, Universidade Nova de Lisboa

Prof. Dr. Mohammad Ashraf Gondal, King Fahd University

Prof. Dr. Weidong Zhu, University of Maryland

Assoc. Prof. Dr. Abdul Ghaffar, Government College University

Assoc. Prof. Dr. Farid Melgani, University of Trento

Assoc. Prof. Dr. Francesco Cottone, University of Perugia

Assoc. Prof. Dr. Rita Ismailova, Kyrgyz Turkish Manas University

Dr. Amina Othmani, University of Monastir -Tunisia

Dr. Arti Jain, Jaypee Institute of Information Technology

Dr. Mariya Ouaissa, Moulay Ismail University

Dr. Merdaci Slimane, University of -Sidi Bel Abbés, Algeria

Dr. Muhammad Sultan, Zakariya University

Scientific Committee

Prof. Dr. Abdurazzag Ali Aburas, University of Kwazulu-Natal

Prof. Dr. Adnan Sözen, Gazi University

Prof. Dr. Amit Soni, Manıpal University

Prof. Dr. Anis Koubaa, Prince Sultan University

Prof. Dr. Carlos A. Coelho, Universidade Nova de Lisboa

Prof. Dr. Josep Guerrero, Aalborg University

Prof. Dr. Juan Vasquez, Aalborg University

Prof. Dr. Laszlo T. Koczy, Budapest University of Technology and Economics

Prof. Dr. Mohammad Ashraf Gondal, King Fahd University

Prof. Dr. Murat Yakar, Mersin University, Turkey

Prof. Dr. Muhammad Rashid, University of West Florida

Prof. Dr. Saad Mekhilef, Malaya University

Prof. Dr. Salim Ibrir, King Fahd University

Prof. Dr. Subarna Shakya, Tribhuvan University

Prof. Dr. Suzuki Hisashi, Chuo University

Prof. Dr. Usha Mehta, Institute of Technology, Nirma University

Prof. Dr. Vagif Gasimov, Azerbaijan Technical University

Prof. Dr. Weidong Zhu, University of Maryland

Assoc. Prof. Abdul Ghaffar, Government College University

Assoc. Prof. Ali Hakan Işık, Burdur Mehmet Akif Ersoy University

Assoc. Prof. Amita Nandal, Manıpal University

Assoc. Prof. Aslan İnan, Yıldız Teknik University

Assoc. Prof. Atif Iqbal, Qatar University
Assoc. Prof. Francesco Cottone, University of Perugia
Assoc. Prof. Farid Melgani, University of Trento
Assoc. Prof. Halit Öztekin, Sakarya Applied Science University
Assoc. Prof. Hamdy Ziedan, Assiut University
Assoc. Prof. Harun Kemal Öztürk, Pamukkale University
Assoc. Prof. Jiri Pela, Brno University of Technology
Assoc. Prof. Merih Palandöken, İzmir Katip Çelebi University
Assoc. Prof. Rita Ismailova, Kyrgyz Turkish Manas University
Assoc. Prof. Sadia Samar Ali, King Abdul-Aziz University
Assoc. Prof. Tanmay De, National Institute Of Technology Durgapur
Assoc. Prof. Zeashan Khan, Air University
Dr. Ali Almisreb, International University of Sarajevo
Dr. Amina Othmani, University of Monastir-Tunisia
Dr. Arti Jain, Jaypee Institute of Information Technology
Dr. Arun Kumar Verma, Malaviya National Institute of Technology Jaipur
Dr. Aziz Shah, University of Glaskow
Dr. Bal Chand Nagar, ECE National Institute of Technology Patna
Dr. Baoze Wei, Aalborg University
Dr. Bohumil Brtník, University of Pardubice
Dr. Diptiranjan Behera, The University of the West Indies at Mona
Dr. Fayçal BENSAALI, Qatar University
Dr. Fugui Qi, Fourth Military Medical University
Dr. Magdi S. Mahmoud, King Fahd University
Dr. Mariya Ouaissa, Moulay Ismail University
Dr. Merdaci Slimane, University of -Sidi Bel Abbés, Algeria
Dr. Moharram Challenger, Antwerp University

Dr. Muhammad Sultan, Zakariya University

Dr. Lesya Anishchenko, Bauman Moscow State Technical University

Dr. Sadina Gagula Palalić, International University of Sarajevo

Dr. Stefania Tomasiello, University of Tartu

Dr. Syed Omer Gilani, National University of Sciences and Technology (NUST)

Dr. Tarık Namas, International University of Sarajevo

Dr. Uduak A. Umoh, University of Uyo

Dr. Yajuan Guan, Aalborg University

Keynote Speakers

Prof. Dr. Josep M. Guerrero, Aalborg University, Denmark

Prof. Dr. Carlos Coelho, Universidade Nova de Lisboa, Portugal

Prof. Dr. Weidong Zhu, University of Maryland, USA

Prof. Dr. Mohammad Ashraf Gondal, King Fahd University, Saudi Arabia

Assoc. Prof. Dr. Francesco Cottone, University of Perugia, Italy

Dr. Muhammad Sultan, Zakariya University, Pakistan

Topics

Engineering

Aerospace Engineering

Agricultural Engineering

Biological Engineering and Sciences

Biological Systems Engineering

Biomedical Engineering

Bioprocess Engineering

Chemical Engineering

Civil Engineering

Computer Engineering

Electrical Engineering

Electronic Engineering

Energy Engineering

Environmental Engineering

Food Engineering

Geotechnical Engineering

Genetic Engineering

Industrial Engineering

Manufacturing Engineering

Materials Engineering

Mechanical Engineering

Mining and Geophysical Engineering

Nanoengineering

Nuclear Engineering

Petroleum Engineering

Power Engineering

Process Engineering

Forest Industry Engineering

Structural Engineering

Systems and Software Engineering

Textile Engineering

Thermal Engineering

Web Engineering

Natural Sciences

Astronomy and Space Sciences

Atmospheric Sciences

Biological Sciences

Botany

Bacteriology

Chemistry

Fisheries and Aquaculture Sciences

Forestry Sciences

Genetics

Geological Sciences

Materials Science

Mathematics

Medical Sciences

Meteorology

Microbiology

Mineralogy

Palaeoecology

Pharmacology

Physical Sciences

Physics

Plant Sciences

Psychology

Statistics

Systems Biology