

UNIVERSITY OF OSLO  
Department of informatics

## Contactless Payment with Near Field Communication

An Empirical Study in  
Ubiquitous Computing Context

Master thesis

60 credits

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## Foreword

This thesis is the result of a research study as a part of the Masters degree in Information Technology at the Department of Informatics.

I would like to thank my internal supervisor Jo Herstad at the Department of Informatics for motivating and constructive guidance with the theoretical and methodical framework, and external supervisor Juan Carlos López Calvet at Telenor R&D for technical guidance and access to Telenor's research lab and equipment for the research.

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Ummear Ahmad Khan



## Abstract

This master thesis focuses on the use of NFC payment in Ubiquitous Computing context. NFC payment and the possibilities that emerge from this technology have been described. A case study has been conducted on the use of NFC payment with two user groups with different backgrounds. Knowledge from both of the previous mentioned work has been used to discuss how NFC payment appears as visible or invisible for the users.

The problem statements are:

- *Describe the possibilities that emerge with NFC as a payment method.*
- *Conduct a user study of NFC as a payment method*
- *Discuss how NFC payment appears as visible or invisible technology for the users in the user study.*

Twelve different users participated in this study. The focus has been on the NFC phone that can be used for payments. The NFC phone was used in the user study which was specially designed to observe the users experience and reactions when the NFC phone shifted between visible and invisible context. The results from the study are presented in this thesis.

The theoretical framework has been Ubiquitous Computing and related theories. Main concepts have been invisibility vs. visibility, center and periphery of attention and routine invisibility to mention some.

The study showed that the users approached and related differently towards NFC payment technology. This was evident through the different reactions and experiences the users expressed through surveys and interviews. It was not possible to sum up with a concluding remark on how NFC payment appears as visible or invisible technology for the users in the user study.

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