

UNIVERSITY OF AMSTERDAM

RESEARCH PROJECT I

**PROTECTING AGAINST RELAY  
ATTACKS FORGING INCREASED  
DISTANCE REPORTS**



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## Abstract

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## 1 Introduction

Introduction to relay attacks. Focus on fake distance reporting [1-2 paragraphs]

Introduction to distance bounding. Explain available methods and why radiofrequency is the most reliable method. [at least 1 paragraph for each one. 2 or 3 for radiofrequency]

- Signal intensity
- Ultrasound
- Radiofrequency (extended explanation on this one as it is the focus of our research)

Explain why faking decreased distance reports is not feasible but faking increased reports is (on our study case). [1 paragraph]

Present the layout of the remaining of the document. Comment what each section is and what is going to be discussed on every one of them. [1 paragraph]

## 2 Related Work

Distance-bounding on access control systems. [1-2 paragraphs]

Studies on MANETS (related to distance and cooperation protocols). [1-2 paragraphs]

## 3 Research Questions

Talk about the deviation from the initial research questions [2 paragraphs max]

Present both research questions:

*Feasibility of forged increased distance report attacks*

Explain the question and why is it important. [1-2 paragraphs]

*Fighting forged increased distance reports*

Explain the question and an introduction to how it will be done. [1-2 paragraphs]

## 4 Methodology

Explain how this is a theoretical study and that great part of it corresponds to literature review and searching sources from which to investigate solutions. [1-3 paragraphs]

## 5 Feasibility of forged increased distance report attacks

Answer the first research question.

Explain why increasing the reported distance between two parties can be a problem. [1-3 paragraphs]

Explain the theoretical attack case. Introduce and notice its difficulties as a practical attack. [1-2 paragraphs]

Talk about other systems that are used for location (GPS, RADAR) and justify how we use them. [1 or 2 paragraphs for each one]

Explain the assumptions made [1 paragraph] Feasibility of the jamming and relaying ...?

Present diverse attack scenarios. [at least 1 paragraph per case] Drones (multiple cases) Cooperative working Area surveillance Automatically driven cars Boats and harbours ...? For each case, state clearly the assumptions made and its limitations

## 6 Fighting forged increased distance reports

Present the solutions

Multiple antennas and shared knowledge [Various paragraphs (5+), this is the first solution]

## 7 Conclusions

Consider the theoretical assumptions of the project [1 paragraph]

Given the proposed solutions, introduce and explain the implications [2 or more paragraphs]

## 8 Future Work

Briefly talk about the need of a more practical study with real hardware [1 paragraph]  
...?

## 9 Acknowledgements

[2 paragraphs max]

\*\* bibliography goes here \*\*

\*\* appendix goes here \*\*