

# Smart Cards: Processors, Applications, Security, and Evolution of the Market

ECE Scholarly Paper Presentation

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## **Abstract**

Smart cards are an extremely effective way of providing secure transactions and identification. Telecommunications has been the driving force behind the growth in the smart card market, and will continue to be, with the advancement of and increased demand for mobile phone technology and Near Field Communication (NFC). It is a rapidly growing market that requires improvements in technology, function, and security. Memory used in smart cards needs to become faster and cheaper. Since new threats are emerging constantly, physical and cryptographic security progress is critical. Cryptographic functions are time intensive, driving the demand for faster and more efficient smart cards. Another motivator for improvement is multi-application smart cards. The corresponding chips and operating systems are more complex, as numerous applications can exist on one card. These trends in the smart card market are likely to continue for years to come.

This presentation will introduce a background in smart cards and help determine where the market and technology is heading. It will explain different types of smart cards, their properties, a history and evolution of the market, and current examples of smart card chips and their cryptographic characteristics. Finally, reliability and security will be presented, describing various attacks that apply to smart cards.