

An Improved Linear Feedback Shift Register (LFSR- based) Stream Cipher Generator

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By

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Abstract

Linear feedback shift register (LFSR-based) stream cipher an improved design for a random key generator in a stream cipher algorithm. The proposed random key generator is simply designed to produce a very quick algorithm to be used for securing GSM communication as mobiles or in satellite communications channels, and it use to avoid attack that happen on cryptography in general and on stream cipher in specific. The simplicity of the design derived from using of four small LFSR and three Xored gates and a single (3 to 1) multiplexer on the content of 8-stages LFSR.

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LIST OF ABBREVIATIONS

LFSR	Linear Feedback Shift Register
RSA	Rivest, Shamir, and Adleman
DES	Data Encryption Standard
HMAC	Hash Message Authentication Code
FIPS	Federal Information Processing Standards
SHA	Secure Hash Algorithm
AES	Advanced Encryption Standard
TDES	Triple DES
NIST	National Institute of Standards and Technology
MACs	Message Authentication Codes
CBC-MAC	Cipher Block Chaining-Message Authentication Code
DSA	Digital Signature Algorithms
ECDSA	Elliptic Curve Digital Signature Algorithm
RNGs	Random Number Generation
PRNG	Pseudorandom Random Number Generation
XOR	Exclusive-Or
SSL	Secure Sockets Layer
ASCII	American Standard Code of Information Interchange
SDLC	System Development Life Cycle
CTAK	Cipher Text Auto key

CHAPTER 1

INTRODUCTION

This chapter briefly explains the background of this study that mainly involves the cryptosystems in general and linear feedback shift register Based Stream Cipher Generator in specific. The majority of this chapter includes overview, problem statements, research questions, objectives of study, scope of study, and significance of research.

1.1 Overview

Cryptosystems are divided between those that are secret-key or symmetric, and those that are public-key or asymmetric. With the latter, the sender uses publicly known information to send a message to the receiver. The receiver then uses secret information to recover the message. In secret-key cryptography, the sender and receiver have previously agreed on some private information that they use for both encryption and decryption. This information must be kept secret from potential eavesdroppers.

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