

## Image Steganography using Java Swing Templates

Authors:

**Sundar Ganesh C S \***

Address For correspondence:

<sup>1</sup> Assistant Professor, Robotics and Automation, PSG College of Technology, Coimbatore, India

**Abstract**— Multimedia data hiding techniques have developed a strong basis for steganography area with a growing number of applications like digital rights management, covert communications, hiding executables for access control, annotation etc. The advantage of steganography over cryptography alone is that messages do not attract attention to themselves, to messengers, or to recipients. An unhidden coded message, no matter how unbreakable it is, will arouse suspicion and may in itself be incriminating, as in some countries encryption is illegal.

**Keywords**-image steganography; AWT Components; Stegoanalysis; cryptography; java swing templates.

### I. INTRODUCTION

Communication by embedding a message or data file in a cover medium has been increasingly gaining importance in the all-encompassing field of information technology. Audio steganography is concerned with embedding information in an innocuous cover speech in a secure and robust manner. Communication and transmission security and robustness are essential for transmitting vital information to intended sources while denying access to unauthorized persons. By hiding the information using a cover or host audio as a wrapper, the existence of the information is concealed during transmission.

#### A. Steganography

The term Steganography refers to the art of covert communications. By implementing steganography, it is possible for two parties to communicate in such a way that no one else will know that the message exists[1]. Typically, the message is embedded within another object known as a cover Work, by tweaking its properties. The resulting output, known as a stegogramme is engineered such that it is a near identical

perceptual model of the cover Work, but it will also contain the hidden message. It is this stegogramme that is sent between the two parties. If anybody intercepts the communication, they will obtain the stegogramme, but as it is so similar to the cover, it is a difficult task for them to tell that the stegogramme is anything but innocent. It is therefore the duty of steganography to ensure that the adversary regards the stegogramme - and thus, the communication - as innocuous.

In modern days, steganography is usually implemented computationally, where cover works such as text files, images, audio files, and video files are tweaked in such a way that a secret message can be embedded within them [5].

Steganography also has its applications in preventing the duplication of products, by embedding some secret text inside the company logo of original product.

### II. JAVA PROGRAM COMPONENTS

The Swing package is part of Java Foundation Classes (JFC) in the Java platform. The JFC encompasses a group of features to help people build Graphical user Interface (GUI); Swing provides all the components from buttons to split panes and tables[2].

The Swing package was first available as an add-on to Java Development Kit (JDK). Prior to the introduction of the Swing package, the Abstract Window Toolkit (AWT) components provided all the UI components in the JDK1.0 and 1.1 platforms. Although the Java2 Platform still supports the AWT components, we strongly encourage using Swing components instead. The AWT button class, for example, is named Button, whereas the Swing button class is named JButton. In addition, the AWT components are in the java.awt package, whereas the swing components are in the javax.swing package.

# Image Steganography Using Java Swing Templates

**Michael Brown**



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