

Review of: "A Security Framework for the Mobile Application Using Color Barcode"

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Potential competing interests: No potential competing interests to declare.

Dear Peer Review Team of Qeios

Hope you are doing well

The manuscript number SH6TPY, entitled "A Security Framework for the Mobile Application Using Color Barcode, was reviewed". The research question is relevant, focusing on enhancing mobile application security through a color QR code framework. The innovative use of color in QR codes for security is a strong point of the paper. The conceptual framework is interesting and could lead to practical applications. However, the paper should be restructured. Some major revisions need to be applied to the whole text to be clearer and improve the text to be acceptable as a scientific report or a paper.

My comments are as follows:

Since the paper does not include line numbers, referencing specific lines or paragraphs is difficult. Please add line numbers for future revisions.

Abstract

Please replace the abbreviations with the complete equivalents the first time they are used in the abstract section and anywhere else throughout the entire text.

Introduction

The introduction section is better to start with a background like the second paragraph of subsection II. Literature Survey. In the current version, the introduction is started with the study aim instead of the background of the research. The introduction section could benefit from a more detailed exploration of why traditional QR codes are insufficient and how color QR codes improve security specifically.

On Page 3 “The encoded URL is interpreted by a barcode reader, which then points the browser to the pertinent page on a website. The encoded URL, which points the browser to the pertinent content on a website, is interpreted by a barcode reader.” These two sentences are the same. The repeated one should be deleted.

The references start from number 2. Please check the references. Most of the sentences in the introduction and other sections do not have references despite needing at least a reference like the text on pages 3 and 4, which also need references.

Methodology

The methodology is innovative, using color channels and RSA encryption for security. However, the explanation of how color channels are manipulated and how this impacts security could be clearer. Also, some technical details on the implementation of the QR code generation and decoding process seem to be missing, which could affect the reproducibility of the results.

Results

The results are presented with several Figures, which is good. However, the text lacks detailed statistical analysis or empirical data supporting the claims of “high imperceptibility, integrity, and security.” Moreover, the quality of the images is low, and the details are not visible. The paper does not have Figure 4. After Figure 3, the authors have shown Figure 5.

Furthermore, the connection between the methodology and the results needs to be strengthened. There is an assumption that the reader understands how color manipulation contributes to security, which should instead be explicitly detailed. The paper lacks detailed empirical data to support its conclusions. Additionally, the methodological explanation needs more depth for full reproducibility.

More comments

The references must be mentioned in the text where they have been used, based on the journal format.

Some grammatical errors must be addressed in the whole text. Address grammatical errors and improve the clarity of some sections to enhance overall readability.

Please add discussion and conclusion sections to the paper. Also, some key recent works that could further support the claims are missing.

It is recommended to include empirical testing or data simulation to support claims regarding the effectiveness of the proposed security framework.

Also, provide a more detailed description of the color channel manipulation and its specific role in enhancing security.

Final Recommendation

Based on this critique, I recommend a major revision for this paper. The conceptual framework is promising, but additional details, clarifications, and empirical support are needed to substantiate the claims fully.

Regards

Dr. Marziyeh Tahmasbi

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