Wojskowy Instytut Łączności - Państwowy Instytut Badawczy

Font design – Shape Processing of Text Information Structures in the Process of Non-Invasive Data Acquisition

Tytuł
Font design – Shape Processing of Text Information Structures in the Process of Non-Invasive Data Acquisition

Typ publikacji
Artykuł

Rok
2019

Data dokładna
2019

Autorzy słownie

Autorzy
Kubiak Ireneusz

ISBN/ISSN
e-ISSN: 2073-431X

Informacje dodatkowe

Abstract: Computer fonts can be a solution that supports the protection of

information against electromagnetic penetration; however, not every font

has features that counteract this process. The distinctive features of a font's characters define the font. This article presents two new sets of computer fonts. These fonts are fully usable in everyday work. Additionally, they make it impossible to obtain information using non-invasive methods. The names of these fonts are directly related to the shapes of their characters. Each character in these fonts is built using only vertical and horizontal lines. The differences between the fonts lie in the widths of the vertical lines. The Safe Symmetrical font is built from vertical lines with the same width. The Safe Asymmetrical font is built from vertical lines with two different line widths. However, the appropriate proportions of the widths of the lines and clearances of each character need to be met for the safe fonts. The structures of the characters of the safe fonts ensure a high level of similarity between the characters. Additionally, these fonts do not make it difficult to read text in its primary form. However, sensitive transmissions are free from distinctive features, and the recognition of each character in reconstructed images is very difficult in contrast to traditional fonts, such as the Sang Mun font and Null Pointer font, which have many distinctive features. The usefulness of the computer fonts was assessed by the character error rate (CER); an analysis of this parameter was conducted in this work. The CER obtained very high values for the safe fonts; the values for traditional fonts were much lower. This article aims to presentat of a new solution in the area of protecting information against electromagnetic penetration. This is a new approach that could replace old solutions by incorporating heavy shielding, power and signal filters, and electromagnetic gaskets. Additionally, the application of these new fonts is very easy, as a user only needs to ensure that either the Safe Asymmetrical font or the Safe Symmetrical font is installed on the computer station that processes the text data.

Powiązane publikacje

-

Adres url strony
https://www.mdpi.com/2073-431X/8/4/70

Plik