

Assignment 1 – Hadamard codes

The challenge is to design a solution for an encoder and a decorder that implements a combinatorial algorithm for message transmission with the error correcting properties developed by Richard Hamming using Hadamard codes of class [8, 4, 4]­2, described as [n, k, d], were n=blocklength, k=message length and d=minimum distance, or [2k­, K, 2k-1].

An additional requirement stipulates that either one, the encoder or the decoder, should implement a serial(series) input, and the other one a parallel input, so our choice was to implement a serial input encoder and a parallel input decoder.

1. Serial input encoder:

Uma imagem com céu, interior, ornamento para pescoço, acessório

Descrição gerada automaticamente <?xml version="1.0" encoding="utf-8"?>

<list>

<visualElement>

<elementName>Text</elementName>

<elementAttributes>

<entry>

<string>Description</string>

<string>D-FF</string>

</entry>

</elementAttributes>

<pos x="940" y="200"/>

</visualElement>

</list>

Uma imagem com texto, interior, preto

Descrição gerada automaticamente

Uma imagem com mesa

Descrição gerada automaticamente