Group 5 - Exam Exercise

Analyse and improve the Watermarking System from the Octave program „text2png.m".

1. Describe within your own words how the system works.

2. How secure is the system? Discuss whether averaging the pixel values of two copies of an image with two different watermarks can be used to remove the payloads.

3. Analyse the robustness of this system according to transformations discussed in the lecture 13.

4. Show that (depending on the length of the payload) it is robust against cropping.

5. Discuss whether using error correcting codes can be used to increase its robustness against jpeg compression or against adding noise.

6. Use and implement the Reed-Muller Code $\mathcal{R}(3)$ with generator matrix R_3 to demonstrate your observations.