

# IMAGE BASED ENCRYPTION SYSTEM

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The invention refers to a method for generating **2D barcodes**, or generic tags, containing information encrypted and not decipherable except by those who generated them. The system allows the user to "hide" information within the images and read the generated tags even in conditions of light changes and occlusions.

**Protection:** International

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## INVENTION

The proposed system uses Deep Convolutional Generative Adversarial Networks (DCGAN) to generate images, in black/white or color (with a style similar to an input image or randomly), that are apparently meaningless, but if read with a special device they reveal a hidden code. The method implements a **public key encryption system** in which the part capable of generating images is considered as a Public Key and the part capable of interpreting images is considered as a Private Key.

## ADVANTAGES

- simplicity of implementation as hardware;
- readability of tags in non-ideal conditions;
- robustness of the decoder, trained with distortions;
- lower aesthetic impact on products and packaging;
- unique and non-repeatable bar codes.

## APPLICATIONS

- replacement of QR Codes;
- augmented reality;
- robotic manipulation;
- watermarking with product logos.

## CONTACTS

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