Fast multilayer color QR code decoder algorithm utilizing fuzzy technique

ABSTRACT

Color QR code is an active research topic. Most of the recent research focus on the decoding success rate and ignore the decoding speed. In this paper, we propose a fast multilayer color QR code decoder algorithm to decode an extended color QR code. The extended color QR code utilize color reference for the color recognition. The algorithm starts with the detection of the color QR code. This is followed by the calculation of the model size. Then, color reference selection from the extended QR code. Next, build a dynamic fuzzy membership, from the color reference set of the extended color QR code and fast color enhancement using the center color pixel for each model. After that, optioning monochrome color QR code by applying color de-multiplexing for the enhanced color QR code. We measure the color recovery speed and compared it with an existing work. The experiment shows using the proposed algorithm we got a decoding speed of 200% faster than the existing work.

Keyword: Colour QR code; Decoder; Decoding speed; Fuzzy