

An online barcode generator

Cham Kwok Chu, Chan Kam Chuen

Advised By Prof. Cunsheng Ding

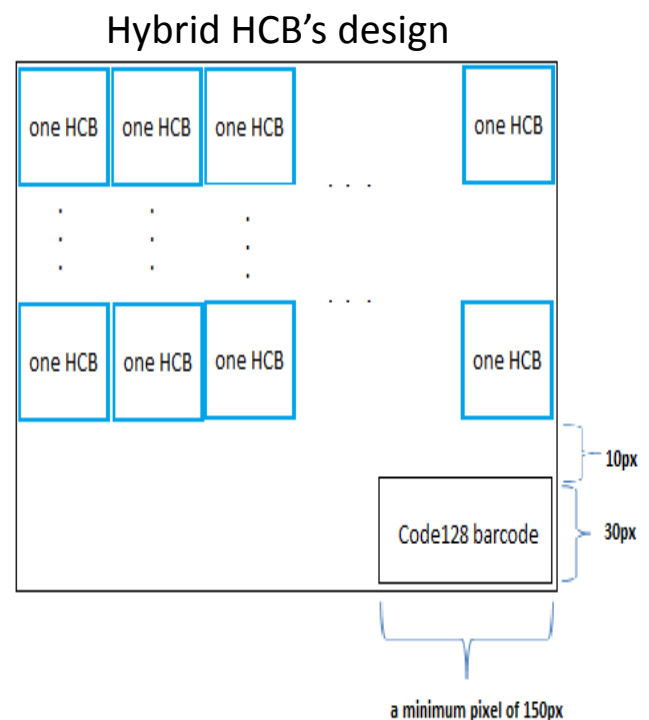
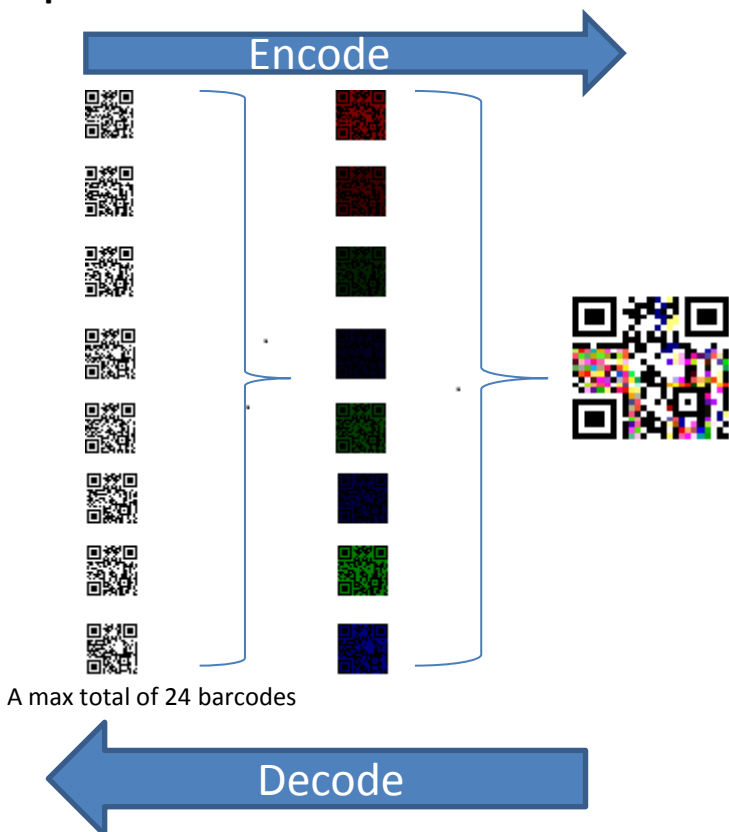
Objective

- One-dimensional barcodes — ISBN, EAN13, code39, code128 to store texts.
- Two-dimensional barcodes — QR code to store texts.
- High capacity barcode (HCB) to store multimedia.
- GUI for styling



HCB information

multiple QR codes can be merged into one HCB and vice versa. A HCB comprising of up to 24 QR code can be created with binary bit's operation. A QR code of version 40, which is the largest size, can store up to 2953 characters. Therefore, our HCB can store up to 72KB data.



There are both HCBs in rows and columns. The Code128 header is with a width of variable length, depending on size of header information. Moreover, one HCB has a standard width or height of 177px (Version 40), enabling itself to store 72KB data. Approximately, a 4MB file can be stored in a square with a side of 1800px.

Evaluation

QR code performance				
Version	10	20	30	40
Average execution time (in seconds)	0.56	0.686	0.951	1.295

HCB(with 24 QR code) performance				
Version	10	20	30	40
Average execution time (in seconds)	< 5	< 8	< 10	≈ 15

High capacity barcode					
	Encoding capability	default character set	supported file types	Encoding	Decoding
CD4(HCB/HHCB)	72KB each HCB	ISO 8859-1	txt, png, jpg,mp3,docx and pdf	72KB per 15s	72KB per 1.5s
PM code	0.72MB	UTF-8	text, URL, html,javascript, MIDI,jpg, mp3 ...	confidential	10s music per 5s
HCCB	3.5KB per square inch	ACSII	text, URL	confidential	confidential

Conclusion

For barcode generator implementation, the most difficult part is optimizing the encoding time of 2D color barcode. As our HCB barcode generator is based on 2D barcode, reedsolomon correction code's running time needs to be decreased and lighting effect would be a challenge for mobile development.

For GUI design, there are many features so that the user can be easily used to style barcodes. Users can upload images through traditional uploader or dragging to the uploader as a background. They can also change the barcode colors and set where to locate the barcodes. Finally, users can immediately view the image in the preview box.



Recommendation for next year's FYP teams

- Further development in mobile version
- Optimization of HHCB by reducing the running time of Reed-Solomon Correction Code.

