Team Berners Lee
Software Engineering II
April 18, 2011

Product Specifications and Installation Guide

Installation Guide

Once you have downloaded our source zip file, unzip our file to a accessible location on your computer. Now open the directory you just unzipped and you should see something similar to **Figure 1**.

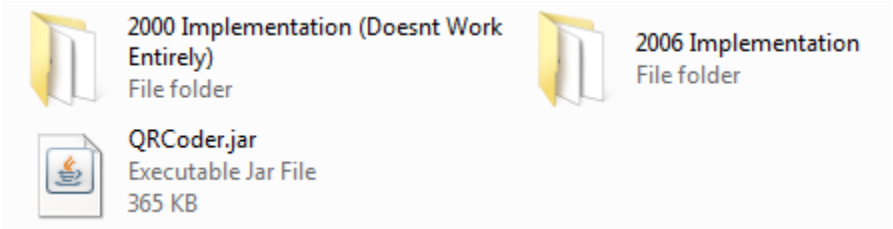

Figure 1 - What you should be seeing in the source directory (Screenshot taken on Windows 7)

The 2000 implementation has been provided although it does not work completely and therefore we will not be providing specifications for that implementation, it is simply there if you would like to look and do a little tinkering. In this directory you will also find our GUI we put together to interface with the ZXYing Barcode Reader/Writer Java Library. To use our GUI you should simply have to execute the jar file. Once the program is running you should see something similar to **Figure 2**.

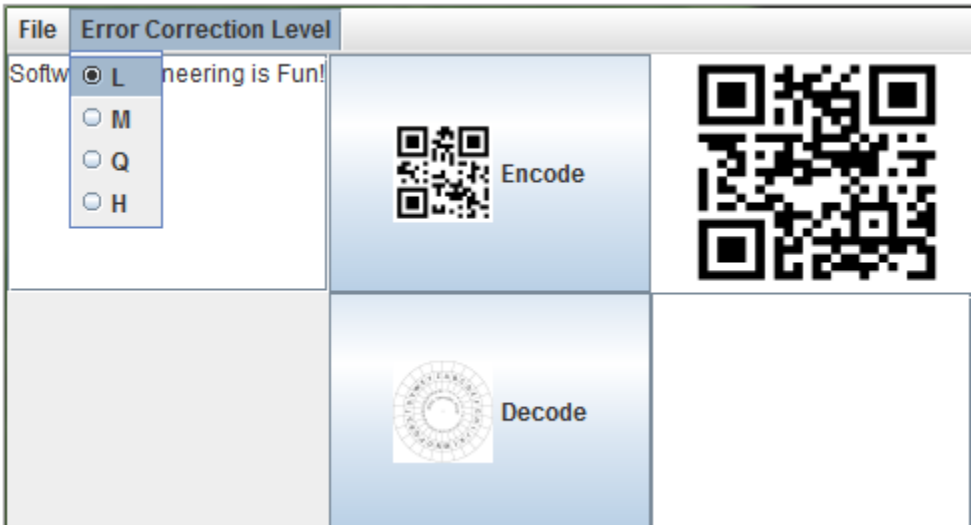

Figure 2 - What you should be seeing when you execute the Jar File

To use this file, in the top left text box type what you would like to encode. As you type it will generate the QRCode from your text and show it in the top right of the window. Once you are finished and would like to save your image, click the encode button and a file saving dialogue box will pop up where you can specify the location and file name for the output bitmap image. If at any point you would like to change the Error Correction Level for the encoding process, you can simply click the Error Correction Level drop down menu and choose the level of error correction you would like. To decode a file, simply click the decode button and a file opening dialogue will appear and allow you to navigate to any type of image (BMP, JPG, PNG etc.). Once you have selected your file, it will display what the image looks like in the bottom left, and show the decoded text in the bottom right.

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Within the 2006 Implementation folder, you should see something similar to **Figure 3**.

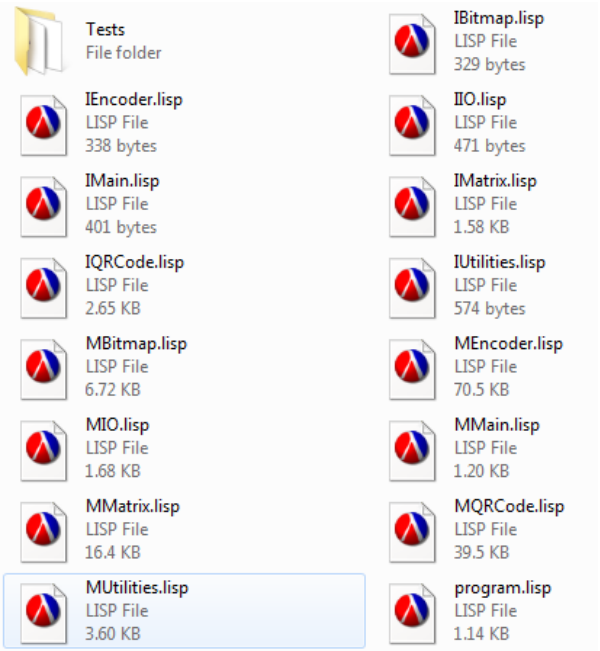

Figure 3 - What you should be seeing in the 2006 Implementation Directory (Screenshot taken on Windows 7)

From here in order to run our product you must have DrRacket, ACL2 and Dracula installed. For information on how to do this please visit http://www.cs.ou.edu/~rlpage/SEtools/Tools/ToolsReadme.htm. Once you have the necessary software installed open "**program.lisp**" using DrRacket in modular ACL2 mode. From here you are ready to use our product.

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Product Specifications

This product is the QR Encoder written in ACL2. To run, open "**program.lisp**" and type in the following command:

(encode content ecLevel filename)

where "content" is the string of text you would like to encode, ecLevel is the error correction level (see below), and "filename" is the string of the path and filename of where the output bitmap file will be saved.

There exist 4 different levels of error correction: L, M, Q, and H. Each corresponding to different percentages of error correction.

- L = ~7% correction
- M = ~15% correction
- Q = ~25% correction
- H = ~30% correction.

To access a specific level of error correction call the function (EC:L), (EC:M), (EC:Q), or (EC:H) corresponding to the four different error correction levels.

For example, calling the function

(encode "Hello World" (EC:M) "output.bmp")

would encode the string "Hello World" into a QR code with approximately 15% error correction, and then proceed to create an output BMP file of this QR code in a file called "output.bmp".

See Table 1 for the maximum number of characters that can be encoded with different ECLevels and modes. However understand the more content you would like to encode, the longer it will take to complete this operation.

ECC Level	Data bits	Numeric	Alfanumeric	Binary	Kanji
L	23,648	7,089	4,296	2,953	1,817
M	18,672	5,596	3,391	2,331	1,435
Q	13,328	3,993	2,420	1,663	1,024
H	10,208	3,057	1,852	1,273	784

Table 1 - Table of maximum number of characters that can be encoded (taken from http://www.denso-wave.com/qrcode/vertable4-e.html)