

StorageMaster – An app which organize your storage

Hanser Philipp^{1*}

¹ Tgm Vienna, Austria
* phanser@student.tgm.ac.at

© 2015 Hanser Philipp et al.; This is an open access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract A storage room should be organized and the stuff should always at its place. In real life the fewest storage rooms are that organized and you have to search for everything you want to get. With the use of QR codes, the “StorageMaster” will help you to keep your storage room sorted. The app is easy to use and it can handle simple and complex rooms as well.

Keywords App, Storage, QR code

1. Introduction

A storage room where you can not find anything is a bad storage room. But especially when many people use a room there will be a mess after a period of time. Because everybody take a box out and then place it somewhere else. To fight this problem you can use “StorageMaster”. It is an app which helps you to keep your stuff there where you want it. The app uses QR codes to recognize boxes and tells you where you have to put it and if you want to find a box you can look up the position in the app and the just go and grab it.

It is a windows 8 app and I use Microsoft Visual Studio 2013 to write the code. In this paper I want to show my working progress from the beginning. For this issue I divide this paper into three sections. The first one is about the preparation. I want to show how I got the idea, what goals I had at the beginning and the first tries to structure and design the app. In the second section I want to show the functionality of each page and how they work together.

The last section is about the work I will have to do for the future and the goals I want to reach with further versions.

2. The preparation

2.1 The idea

I got the idea for this app after helping at a big event. When we cleared up everything and put all the stuff into boxes, we stud in front of the shelf and did not know where we should put the boxes. So we had to find somebody who knows where all the boxes should be placed and that was often very complicated. We managed to do it but it was very hard and a big problem is that after the next event every box will be somewhere else. So for every event we have to search for the right boxes and then search for the right place.

To simplify this progress I thought about: What can help us to make this easier? I tried to find a simple way to group a box and its place together. A friend of mine give me the idea of QR codes. So I worked out a plan for an App where you can define places and combine them with a QR code. Then you put a QR code on a box and if you scan the QR code the app tells you where to put it.

2.2 Goals

At first I tried to figure out some goals for the first version:

- Capture photos of your storage
- Define areas
- Combine areas with QR codes
- Scan QR codes
- Show area on the pictures

2.3 Structure

The next thing I was thinking about is the structure. Out of my experiences I know that I have to group the areas because most storage rooms have a few shelves and each shelf has a few places for boxes. So I worked out a structure with three different types of objects:

- Main group
- Subgroup
- Item

As an example items are the places in the shelves. The shelves themselves are the subgroup and the main group is the storage room.

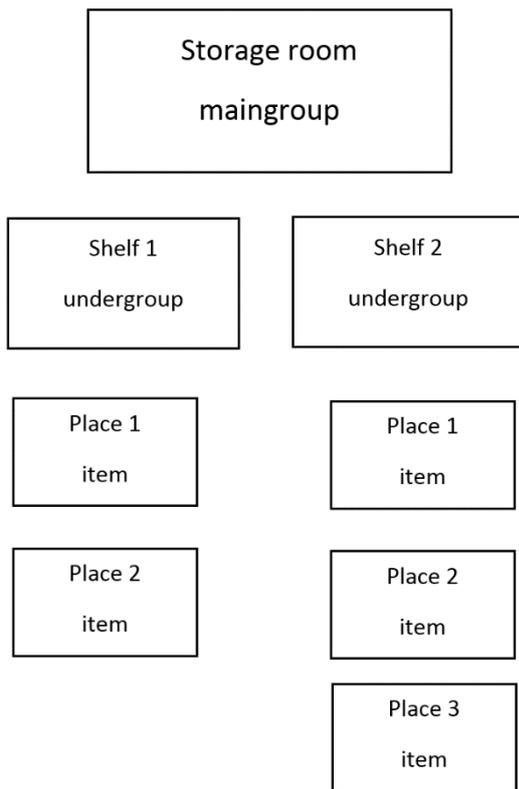


Figure 1. Example of the structure

This is a simple example of the structure. For a more complicate storage system you are able to add a subgroup to a subgroup. This structure should help to keep the overview over your storage. If you just want to use this structure for a single shelf you can also make the shelf as a main group and add the places directly to it without a subgroup.

2.4 The design

I needed to create a simple and user-friendly design. It should lead the user through the app so that no introduction is needed. I have several pages and I tried my best to achieve this.

3. The app

In this section I want to show how the app works and what you can do with it

3.1 Main page

If you open the app for the first time it looks like Figure 2.

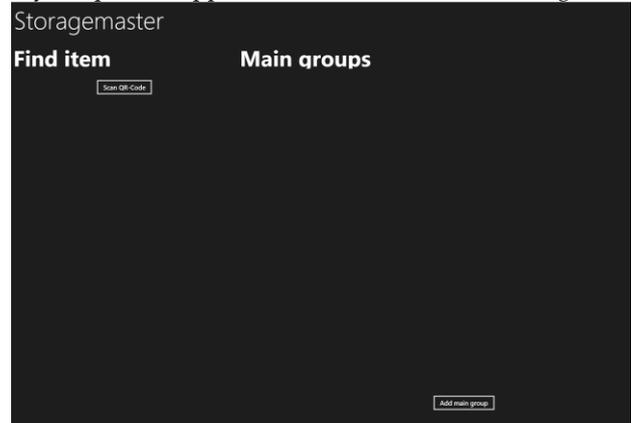


Figure 2. Main page empty

On this page you have the opportunity to find an item or browse through your groups if you have created some. If you have no main groups, the page is completely empty. But if you have create some, they get shown under the main group heading (Figure 3).

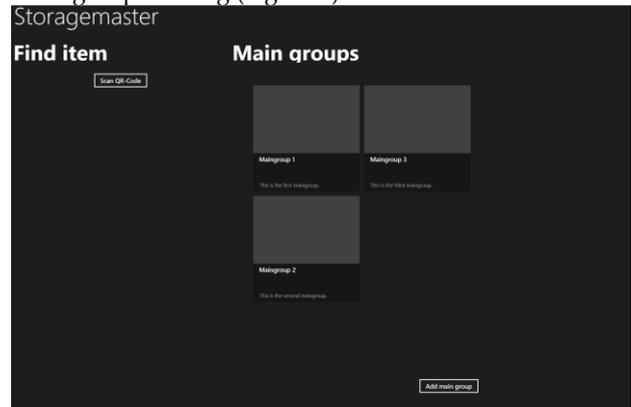


Figure 3. Main page with main groups

If you click on one of these groups it will open a page where you can look up the subgroups and items. If you set a picture for the group it would be displayed instead of the grey background.

To find an item you have to press the "Scan QR Code" button. Then you can scan a QR code and search for the appropriate item. (Figure 4)

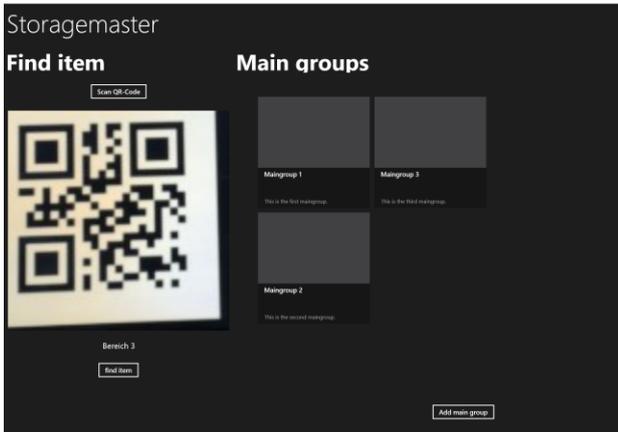


Figure 4. Scanned QR code

If you have scanned a QR code a button appears. If you press the “find item” button it will show the item.

3.2 Detail page

On this page you see the details about the group. This page shows: Name, description, pictures, subgroups and items.

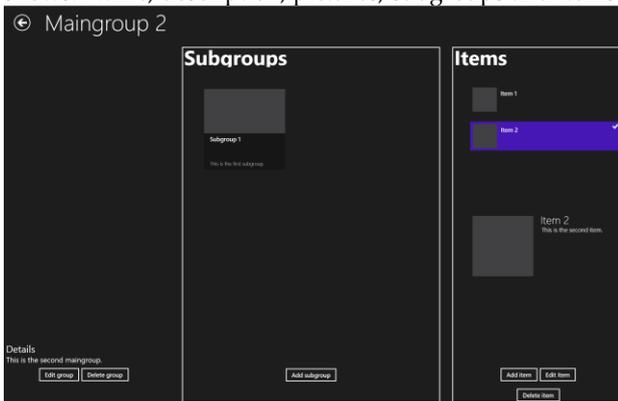


Figure 5. Detail page

On the top you see the name of the group and the left part of the screen is for information about the group. There would be a picture if I had set up one. If you click on the picture it shows where all the subgroups and items are located. In this section you can see the buttons for editing and deleting the group. In the middle of the page you have all the subgroups listed up. If you click on a subgroup you get to this page again, but with the information of the subgroup. At the bottom you find the “add subgroup” button to create a new subgroup.

On the right you have listed up all the items. If you click one it get marked as shown and the information is displayed underneath. At the bottom of this section you find the buttons to add, delete or edit an item.

3.3 Add and edit main group

The pages to add and edit a main group are the same. The only different is, if a group get edited the known

characteristics get loaded. A main group consist of a name, a description and pictures. The only must have is the name, the rest is additionally.

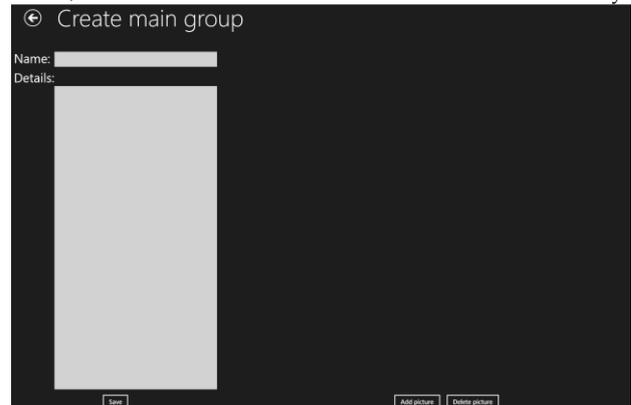


Figure 6. Create main group

3.4 Add and edit subgroup

Like the pages of the main group, also this pages are the same for editing and creating. A subgroup consist of a name, a description and pictures, too. As before only the name is a must have. In addition to this you can mark the place of the subgroup on a picture of the group above.

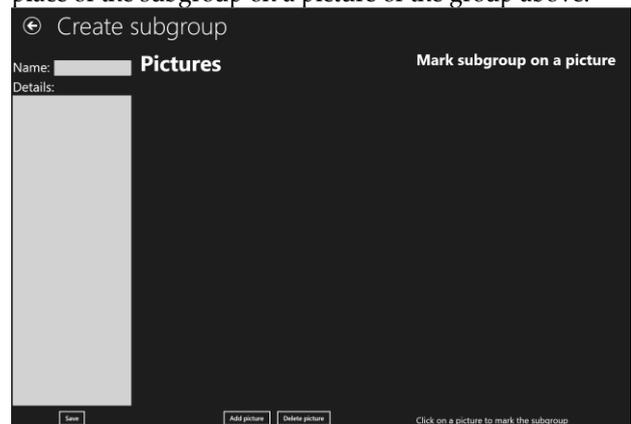


Figure 7. Create subgroup

In this case there are no pictures to mark the subgroup on because the group above have no pictures.

3.5 Add and edit item

This page is the same as the page for subgroups. The only different is that an item have no pictures, it has only one QR code.

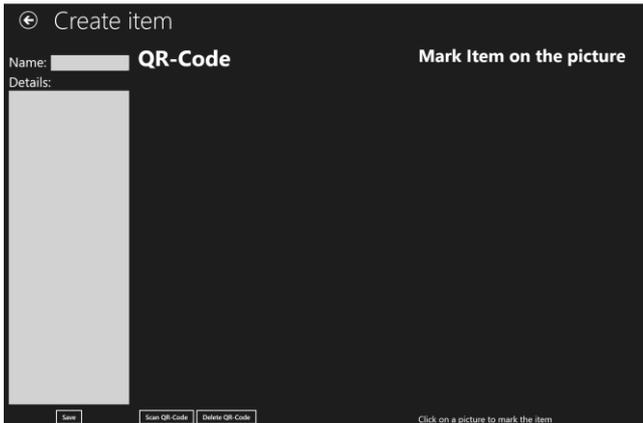


Figure 8. Create item

3.6 Mark item or subgroup on a picture

This page pops up if you want to mark an item or a subgroup on a picture from the group above. On this page you have the chance to choose four points on the picture, which will create a rectangle. This rectangle shows the place for the item or subgroup.

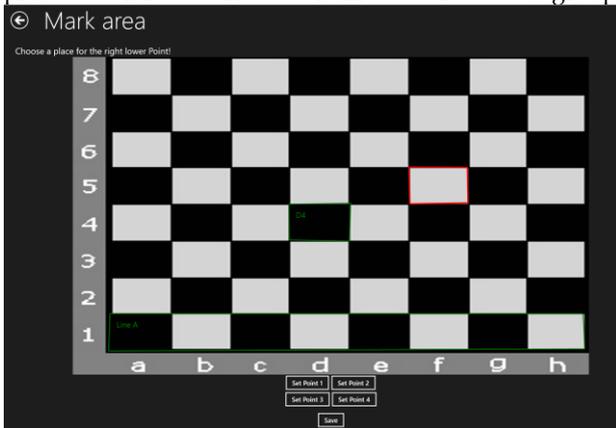


Figure 9. Mark area

In this example I choose a chessboard. The green rectangles are already defined areas. The red one is the rectangle I am defining at the moment. The line above the picture tells you which point you have to choose at the moment.

3.7 Show item or subgroup on a picture

This page is shown when you click on a picture on the Detail page. It displays the picture with every subgroup and item marked on it.

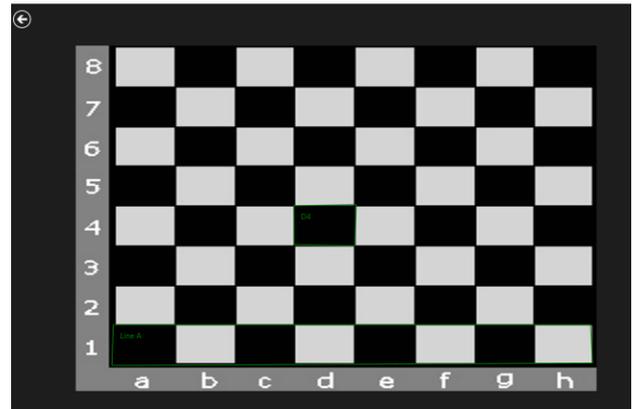


Figure 10. Show marked areas

3.8 Item found

If you scan a QR code and search for it, you get to this page.

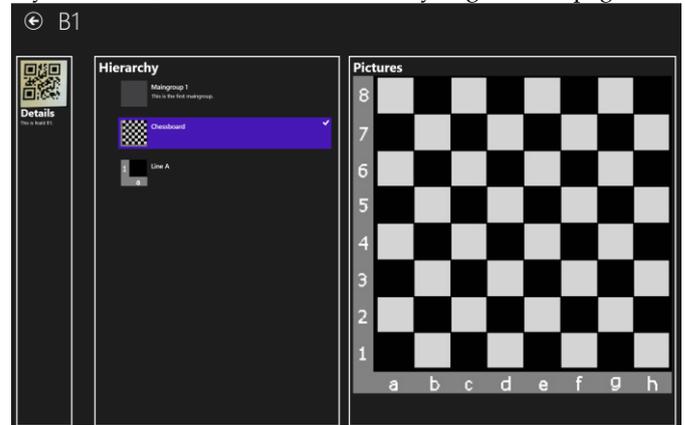


Figure 11. Item found

On the top is the name of the item and on the left side you get information about this item. In the middle the hierarchy is shown. In this example you see that "B1" is an item of "Line 1". "Line 1" is a subgroup of "Chessboard" and "Chessboard" is a subgroup of "Maingroup 1". If you click one of this hierarchy items, the pictures are displayed and if you click on a picture it will show the marked areas. But this time it will not show all the marked areas. It will only display the area from the item or group which is beneath in the hierarchy.

4. Future goals

As I mentioned at the top this is only version 1. For the future I also got some goals:

- Testing
- Fix bugs
- Rework design
- Use mobile phone as scanner
- Find areas live

The last point means that if you look for an area you take your camera on your mobile phone, point in the direction of the shelf and the area for the item will be marked on the

display.

4. Conclusion

I am proud of the work I have done until now, but I know that there is a lot to do in the future to make this a perfect helper for everyone.