BenutzBar – An Interactive Cocktail Menu

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Abstract

Using cocktail ingredients as tangible interface objects, BenutzBar simplifies and enhances the ordering process of cocktail lounges. Users can interactively filter the cocktail menu by connecting ingredients to their glass.

The prototype uses optical marker tracking to recognize the tangibles and displays the digital user interface elements on a large, laid down screen.

Introduction

BenutzBar is an interactive installation that allows people to order cocktails (e.g. in a lounge) by using the desired ingredients as tangible interface objects.

Today, ordering drinks proceeds exactly as it was decades ago. A customer receives the menu, chooses the desired drink and usually a waiter or barkeeper takes the order. The menus mostly provide an overwhelming amount of information and choice, leading to a lower level of engagement and satisfaction (also known as "the paradox of choice"[1]).

The installation enhances the ordering experience for customers. Guests at the bar using the interactive installation are encouraged to order cocktails – especially new recipes – by browsing through the cocktail menu in a playful way. The basic concept is an interactive menu filter. The users can chose their individual preference by directly using the ingredients and are immediately presented with only three corresponding drink options.

Related Work

The "Bacardi iBar"[2] covers a similar topic. This bar is a touch table which detects cocktails via tangible objects and shows the respective information (recipe, history, variations) on the table. However, it does not facilitate the ordering process and is mainly an information display.

The project „Lichtung"[3] is an ambient intelligence lounge. The lounge detects the color of the customers drink, absorbs it and passes the color to the environment. In a way, the customer becomes a piece of the bar and it therefore enhances the customer experience.

Similar in terms of interaction methods is the "IP Network Design Workbench"[4] by the Tangible Media Group of the MIT Media Lab.

Concept
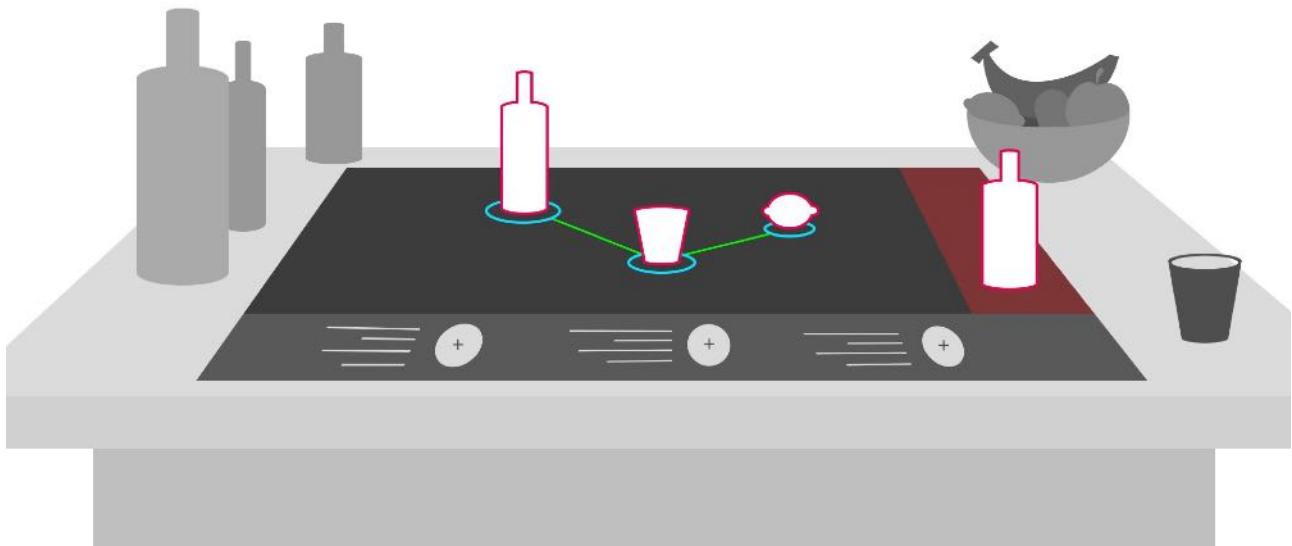
The BenutzBar installation is a large table with many cocktail elements (ingredients) on it. There are three categories of elements:

1. Liquids (in bottles), providing all fluid ingredients of a cocktail, such as alcohol, syrup or juice
2. Solid ingredients, e.g. fruits or ice
3. Containers, e.g. glasses or pitcher in different sizes

Liquids and solid ingredients can be combined with a container and become connected to it. The users can combine as many elements as they want. After connecting ingredients with the container, the displayed recipe selection immediately changes to include only cocktails with those ingredients. Additionally, the selected cocktail can be saved on the container (e.g. the glass of the user) to simplify the ordering procedure.

To encourage the user to try unknown or new cocktails, the recipe selection provides three options: the popular choice, a fancy recipe and an experimental recipe.

The table itself also has a large screen in its center, displaying all necessary user interface elements on its surface. This screen is divided into 3 areas:

1. "Connection"
   The biggest part in the center of the screen, for all ingredients that are connected with a container element.

2. "Exclusion"
   A small column on the rightmost side is a "red area". All ingredients placed there are excluded from the cocktail selection.

3. "Selection"
   A row at the bottom of the screen, showing cocktail recipes with images of the finished cocktail and enabling the selection of those recipes.

Interactions

First Use Guide

Upon first use, a circle appears on the screen, encouraging the user to place a container element inside the circle (fig. 2). After the container is added, a second circle appears to add a fluid ingredient (fig. 3). The last step is a circle for adding a solid element. The UI now encourages the user to use the bump gesture to connect the ingredients with their container, highlighting the changing cocktail selection on successful connection.
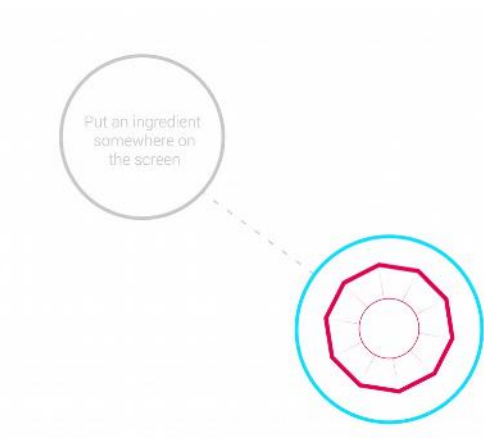

Put a glass or pitcher here

Fig. 2

Put an ingredient somewhere on the screen

Fig. 3

Interaction without guide

Add a container of preferred size to the screen surface. A circle around the glass will appear on the screen.

Adding Ingredients

With a container as base, the user can now add some ingredients he likes on the screen. Putting another element on the screen will also create a circle around it. By connecting these elements with a "bump" (fig. 4), a line will connect both circles (fig. 5). After connecting, for example, orange juice with a glass, the displayed recipes in the "selection" area are updated, showing all cocktails with orange juice as an ingredient.
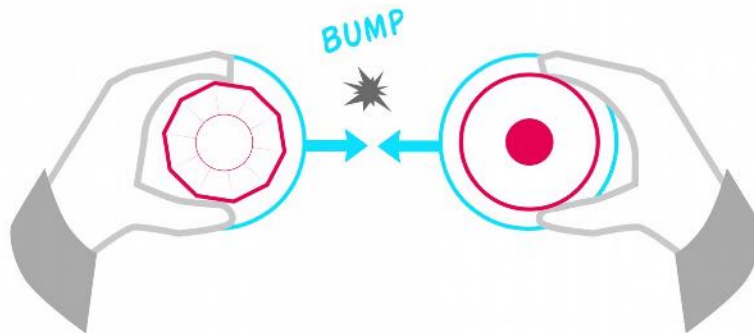

Fig. 4

Fig. 5

Changing the Amount of Ingredients

It is possible to change, for example, the amount of alcohol in the cocktail. If there is a user who wants a rather soft cocktail, he can turn the alcohol bottle counter-clockwise to decrease the amount (fig. 6). With a small indicator on the screen, the user will get visual feedback about the amount he has chosen: little, normal, or much.

Fig. 6

Exclude Ingredients

Sometimes there are ingredients a user does not like or is not allowed to consume (e.g. food allergies). After moving an ingredient into the "exclusion" area, a red circle will indicate that this item is now excluded (fig. 7). The recipes are updated to show only cocktails without the excluded ingredients.
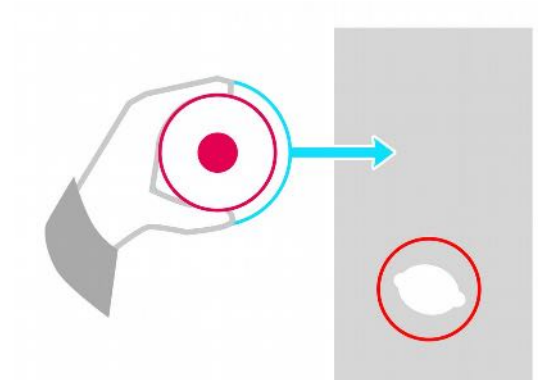

Fig. 7

Saving and Ordering a Cocktail

If the customer wants to order a cocktail from the selection area, the container can be placed onto the respective recipe (fig. 8). The cocktail name and the adjustments the user has made (e.g. less alcohol in the cocktail) are saved for this specific container. The customer can then pass the container to the barkeeper, who is able to create the specified cocktail.
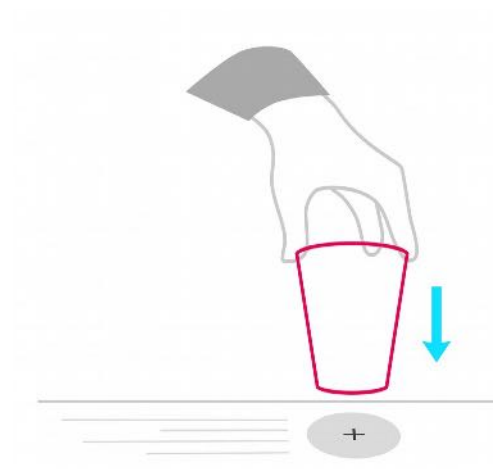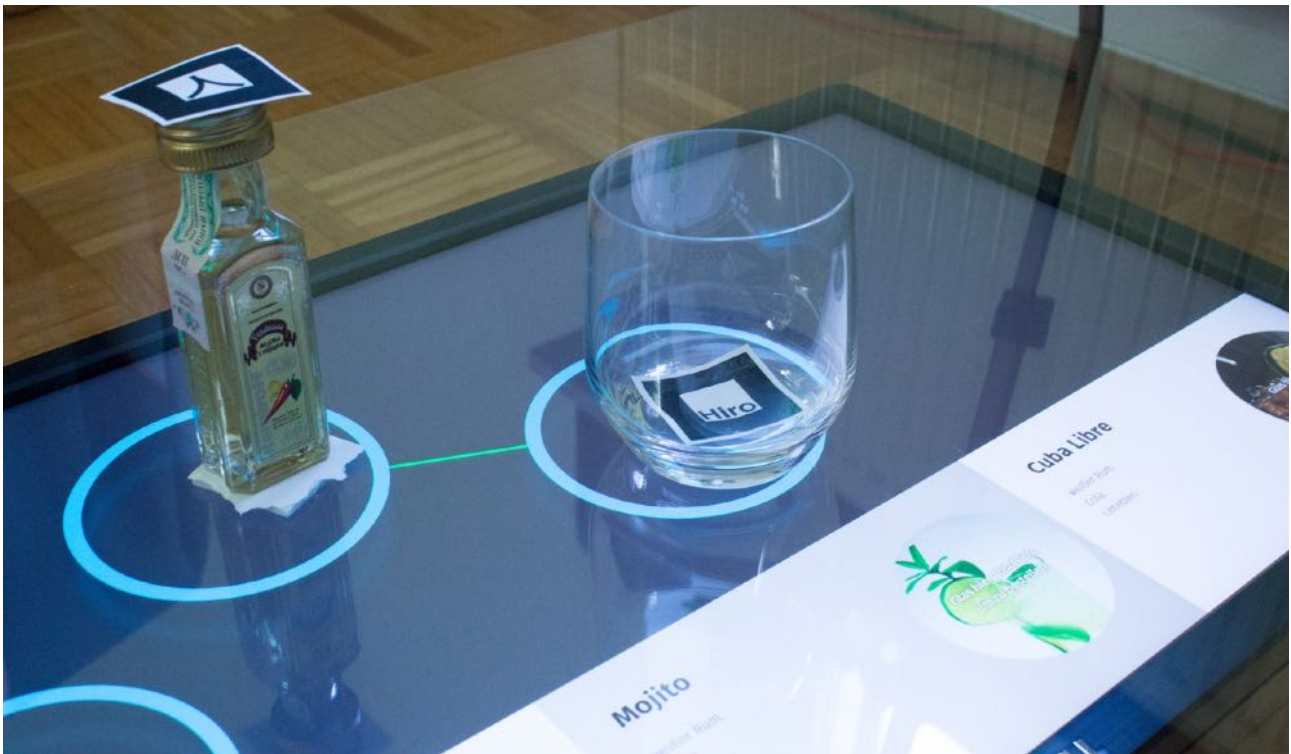

Fig. 8

Prototype & Technology

Tracking a diverse selection of tangibles on a screen area can be done using multiple technologies, such as:

- Optical recognition and tracking (tangibles with optical markers on top)
- A multi-touch screen (different touch points on each of the tangibles)
- Rear projection with cameras (under the table, optical markers on the bottom of tangibles)

After evaluating the options, we concluded that optical recognition and tracking is the most flexible option to base the prototype on. Compared to a multi-touch screen, tracking accuracy and recognition delay are not as good – but the prototype works with every screen (TV, computer monitor, projector…) and webcam available, which is a good trade-off. A rear projection table with camera tracking would be the ideal option, but those are very expensive and also not readily available.

The optical tracking and recognition is implemented using the NyARToolkit for Processing with a webcam and fiducial markers. The marker position data is passed to a web application (JavaScript, HTML5, CSS) running on a large (> 24") computer monitor. The webcam is placed above the monitor on which the tangibles are placed. The monitor is laid down horizontally on a table and is protected by a translucent pane of glass or polycarbonate glass (ideally with anti-glare coating). The webcam must be placed above the screen and calibrated in software (depending on screen size and webcam).

Future Work

Currently, the concept only features single-user interaction. As lounges and bars are places where people meet, it is important to include groups in the ordering process. Multi-user interactions could feature, for example, the transfer of recipes from one container to another (e.g. if a friends wants to order the same cocktail) and simultaneous selection of cocktails while sharing the ingredients.

Conclusion

With digital technology advancing evermore into the analog world, tangible interfaces are a key element to keep the connection between the user and data. They can simplify and reduce complexity while enhancing the user experience through a natural way of interaction. We wanted to show that even long established processes can be enhanced with new interaction methods.

1   Barry Schwartz, The Paradox of Choice, Harper, 2004
     see also: https://en.wikipedia.org/wiki/The_Paradox_of_Choice
2   http://vimeo.com/50771281
3   http://vimeo.com/36403894
4   http://vimeo.com/44533974