
An evaluation of and design concept for the Nando's till system

Butrint Termkolli

Goldsmiths University
8 Lewisham Way, New
Cross, London SE14 6NW
bterm001@gold.ac.uk

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).

CHI 2020 Extended Abstracts, April 25–30, 2020, Honolulu, HI, USA.

© 2020 Copyright is held by the owner/author(s).

ACM ISBN 978-1-4503-6819-3/20/04.

DOI: <https://doi.org/10.1145/3334480>.

Introduction

There are over 39,000 restaurants in London, with around 15,500 of those using some form of virtual system for taking or processing orders. Working part-time in Nando's, I have first-hand experience with our till systems. I will be evaluating the overall design of these, scrutinizing if any improvements are possible in the system, or if there are currently areas that are successful at managing the busy restaurant process.

Current Academic Work

Academic research revolving around the investigation and usability of touch-based user interfaces (Abul Fadle Maidin, 2014) show us that speed and efficiency are key when using a touch-based interface. In the researches results, it found that stylus/finger-based inputs were of highest efficiency when tested against mice, joysticks and keyboards.

Finger-based inputs are what Nando's uses, as the digital screens are capacitive *[Appendix 1.1]* – only an object that conducts electricity (like the human body) will work as an input. It was concluded that although finger inputs were quickest, there were high amounts of error due to a variety in finger sizes and pressure. An issue like this can be addressed by the user interfaces design; creating larger buttons will allow less room for error.

Self-service technology (S. Kincaid PhD, C. and Baloglu PhD, S., 2005.) in a casual dining service 'is looming upon the horizon'. Findings indicated that the reason for its current success was due to the convenience, ease of use, and fast service. Customers disliked the idea of table service, as they sometimes felt compelled/rushed to order when a member of staff/server arrived at their table.

A prominent feature that the workers/users wanted to see added was the use of larger buttons, as they found themselves pressing the wrong buttons which prolonged the ordering step. This could be useful in redesigning the interface in a way that minimises the chance to make an error.

Existing Technology

I will be conducting a heuristic evaluation on our current till systems *[Appendix 2.1]*, looking at the current usability of them. My reason for using a heuristic rule-of-thumb approach is because it provides a powerful insight into possible usability issues that might damage the user experience, in this case, our users are Nando's employees.

The heuristic approach follows 10 established 'rules', however, I will only be looking at the guidelines that relate to the interface I am analysing, as all 10 are vaguely assumed for all forms of user interfaces.

The first usability heuristic I will be looking at is a user's control and freedom. This means that the interface offers a digital space where backwards steps exist, including being able to undo or redo previous actions with moderate ease. Our current system is incredibly poor with undoing any steps being taken. If a customer is ordering, and selects a spice for their main, the system will then move over to whether there are any sides for the meal. There are no back buttons *[Appendix 2.2]*; if the customer changes their decision on the spice level they desire at any time during the order, the user is unable to go back and must cancel the entire order and redo it.

The second usability heuristic I will be evaluating against is the aesthetic and minimal design of the user interface. This heuristic focuses on whether the interface succeeds at keeping clutter to a minimum, with necessary components being displayed for current tasks. I think that overall, the current user interface does a satisfactory job at displaying the complete restaurant menu, with tabs on the side and top separating the different sections of the menu *[Appendix 2.3]*. The buttons are clear and easy to understand, displaying simple text that cannot be misinterpreted. One section of the aesthetic design that is poor however, would be the variety pop-ups *[Appendix 2.4]*. For instance, when clicking on a button for a main dish, the menu that appears prompting a spice level is incredibly small, which makes it difficult for a user to see what has been selected. This is concurrent throughout all of these pop-up menus.

Error prevention is substandard. Nielsen and Molich described error prevention as ‘designing a system so that potential errors are kept to a minimum.’ This is contrasted with Nando’s’ till systems. Human error will always exist, and the user interface does not account for miscommunication in a team, which is bound to happen. If an item is missing/sold out, there is no way for a superior member of staff to manually

block these items on the till systems. This means that items that are no longer available can be sent to the grilling team - causing issues with customer service, due to an unavailability of their order that had not been dealt with immediately.

The current systems do have some form of logical order that is followed. This relates to the usability heuristic which is matching between a system and the real world. Nielsen and Molich state that ‘presenting information in logical order will reduce cognitive strain and make systems easier to use.’ Nando’s has a set disposition that is followed; however, there is no form of interface flexibility – another one of Nielsen and Molich’s usability heuristics. If you’ve ever found yourself in a Nando’s restaurant with a cashier demanding your table number; it is due to the interface thwarting the user from performing any tasks until a table number has been entered *[Appendix 2.5]*. This is apparent throughout the entire interface, not allowing a set order to be deviated depending on the type of customer that is being dealt with.

With some features which are useful, the current user interface requires improvements. It is not tailored to a restaurant, as it ignores any form of user/customer error; which is extremely common in an environment that both employs and deals with a great deal of unique individuals.

Participant Research

I conducted one-to-one research with my co-workers and superiors, with a total sample size of 16. These discussions were executed by using a hands-on and think aloud protocol, in which I would ask a participant to navigate to a certain area of the virtual interface while saying whatever comes into their mind as they complete the task.

I had a total of 6 navigation tasks, with all of these tasks in the same order for each participant [*Appendix 3.1*]. This was done to avoid any extraneous variables that could have been developed by a random order (eg; a difficult first task might discourage a participant to complete other tasks to the best of their ability.) This was effective in discovering what fellow Nando's workers found tedious about navigating through the user interface.

After the think aloud technique had been concluded, I asked participants to answer a short survey, which questioned the usability of the user interface [*Appendix 3.2*]. This survey was important, as it gave me a standardised way to gather quantifiable and comparable data, something a think aloud technique struggles with.

Quantitative data was gathered regarding the speed, efficiency and ease of use; with qualitative data being retrieved from questions such as 'What's one thing you'd change about the current user interface'. Reasoning behind using a combination of quantitative and qualitative data is that it can improve an evaluation by ensuring that the limitations of one type of data are balanced by the strengths of another.

Results were pretty similar across all participant, with a few variations on what participants liked and disliked about the user interface. During the think aloud task, 14 (88%) participants agreed that the user interfaces have clear menu buttons, with a total of 11 (69%) participants mentioning that buttons are easy to press.

During the think aloud task, the entire (100%) group acknowledged that modifying an order was extremely tedious; with a majority of participants preferring to delete the meal in task 3&4 due to it being quicker than modifying the order. One participant mentioned that 'For all the mistakes that customers make, I'd expect them to make it easier for us to undo or modify orders.'

The survey results [*Appendix 3.3*] showed comparable results, with all participants indicating that the pop-up menus were irksome;

with most participants (13) stating that modifying orders was the worst thing about the till systems.

Design

The information gathered from the surveys and think aloud tasks were extremely useful for me to build a wireframe and prototype design to cater to a worker's needs, while at the same time maintaining what was adequate with the current interfaces.

Looking at the original design for the main menu screen, it shows blank areas which leaves space for the restaurant to add new items to the menu, something that is extremely frequent for this restaurant chain. However, there was unnecessary clutter near the bottom, especially with the 'Mods +' and 'Mods -' buttons in theory being extremely useful, however, were left there from a past interface update so do not work.

The 'Modify' button does work, although it opens up a new screen from the former interface which is extremely slow to use and sometimes is unresponsive, crashing the till system.

A new design must allow for efficiency and give clarity to what each buttons role is in the system. The current interface is piled up behind several different pop-up screens, which although could

be useful in maintaining a step-by-step process, instead makes it extremely hard for a user to efficiently navigate the system with idiosyncratic responses from customers.

I initially planned out some rough wireframes on AdobeXd with the usability heuristics and participant research in mind, so that interface criteria were being met throughout the whole design phase.

Continuing with AdobeXd, I created a few designs based on the pop-up menus that were heavily disliked, apparent during the participant research [*Appendix 4.2*]. I created two designs based on simplicity; focusing on the idea that all parts of a meal (Main, spice level and sides) are not separated behind individual pop-ups. This means that a customer's random sequence of ordering food (eg; deciding on sides first before a spice level) will not delay the process.

I also kept what participants said they liked about the system, moving a few things around to accommodate free space. Colours are extremely important when working in a fast-paced restaurant. A usability heuristic I was constantly comparing to was having a minimalistic design with relevant aesthetics. I made sure that colours matched the paper menu, as well as the actual ingredients contained within the options (eg;

Mushroom & Halloumi options have a black border resembling a Portobello mushroom, with a yellow fill for the halloumi; Supergreen options resemble the patty which is a rich green colour.)

[Appendix 4.3]

An important area within a restaurant is allergies. We have a huge allergen/ingredient menu (around 200 pages) which is extremely difficult to handle during orders, so I've incorporated it within the system itself. When using the 'Modify' button, the interface will allow you to enter any allergies a customer has. The allergen is found on a database which then searches the entire menu, flagging any options that contain the ingredient. This ensures that food is safe to eat in the most responsive possible way. *[Appendix 4.4]*

Pressing modify will also bring up all the possible additions you can add and subtract from an order, such as '- Tomato' or '+ Cucumber' for a burger.

Research Plan

The next steps towards honing my design is to test it with the same participants I used for the current interface analysis. I will use a/b testing to compare how the interfaces compete with each other, and if my new design is more effective at doing its job than the current one.

Any criticism will be valuable, making changes to the design depending on a majority feedback, constantly referring back to the users' criteria to ensure I'm not deviating from the wanted designs.

Conclusion

I learnt that it's extremely hard to make an interface that can be tailored to everyone; we all have individual preferences, and building a single system will always disconcert some users.

With this interface revamp, I hope to achieve a simpler more effective way to navigate through the system. The changes made to the interface will allow for a more positive look on self-service restaurants, as it will allow for workers/users to be able to take orders faster, and deal with customer service more appropriately.

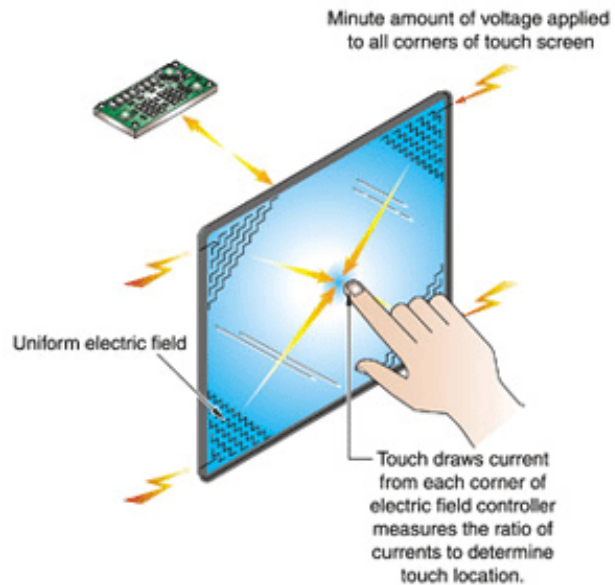
References

Abul Fadle Maidin, M. (2014). *Investigating The Usability Of Touch-Based User Interfaces*. [online] Usir.salford.ac.uk. Available at: <http://usir.salford.ac.uk/id/eprint/37784/1/INVESTIGATING%20THE%20USABILITY%20OF%20TOUCH-BASED%20USER%20INTERFACES%20-%2015%20-%2016-2016.pdf> [Accessed 19 Dec. 2019].

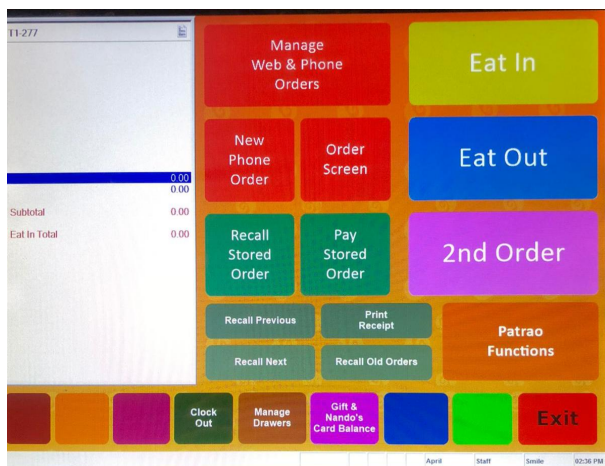
S. Kincaid PhD, C. and Baloglu PhD, S. (2005). *An Exploratory Study on the Impact of Self-Service Technology on Restaurant Operations*. [online] Taylor & Francis. Available at: https://www.tandfonline.com/doi/abs/10.1300/J369v08n03_05?casa_token=T9I68GFfgsIAAAA%3AB3YjuR2ojSUnwWGMuimzJTwsD9YgmUzxaiBTxMVyM7C0VLXmgeS5SIXYYWYG1Wd5GGKL3wBzJUE& [Accessed 3 Jan. 2020].

Nandos 'Chickenland' Corps. (1987). *Current Till Systems*. [physical] nandos.co.uk

Appendix



[Fig 1.1]; A Diagram explaining how capacitive sensory works in conjunction with displays.



[Fig 2.1]; Current Till System, showing main screen, Main Menu screen



Please circle the box in which you feel appropriate (Only one per question please)

	Strongly Agree	Agree	Disagree	Strongly Disagree
Undoing orders is easy	☹️	😊	☹️	☹️
The pop-up menus are good	☹️	😊	☹️	☹️
Modifying orders should be made easier	☹️	😊	☹️	☹️
It is easy to take orders using the till system	☹️	😊	☹️	☹️
The till system should be changed	☹️	😊	☹️	☹️

[Fig 3.2]; Survey that participants took after the think aloud task.

Name **one** thing that is good about the current till systems:

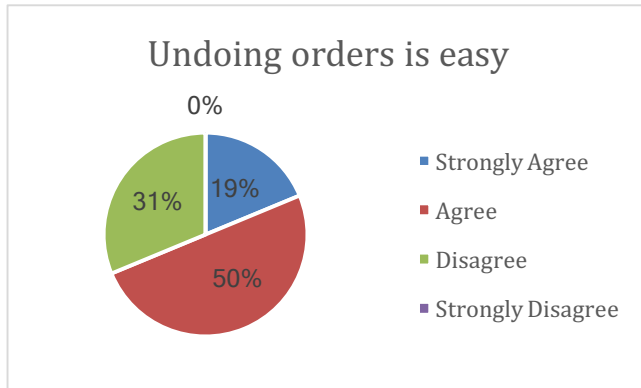
.....

Name **one** thing that is bad about the current till systems:

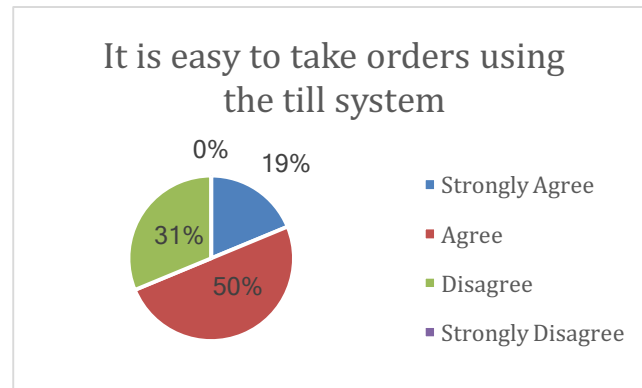
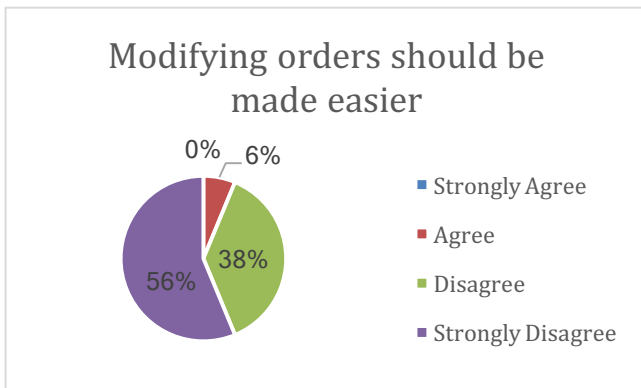
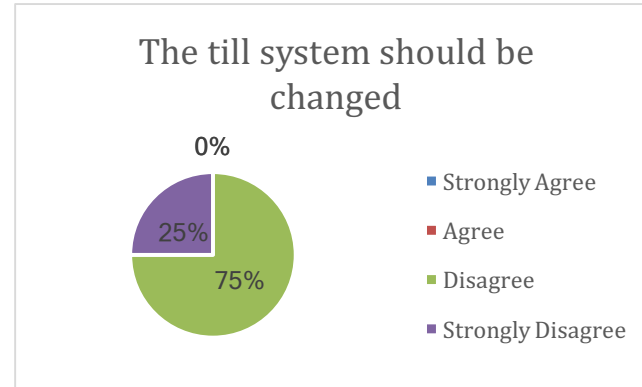
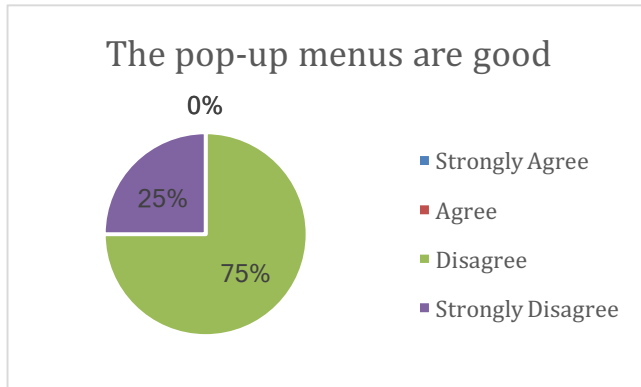
.....

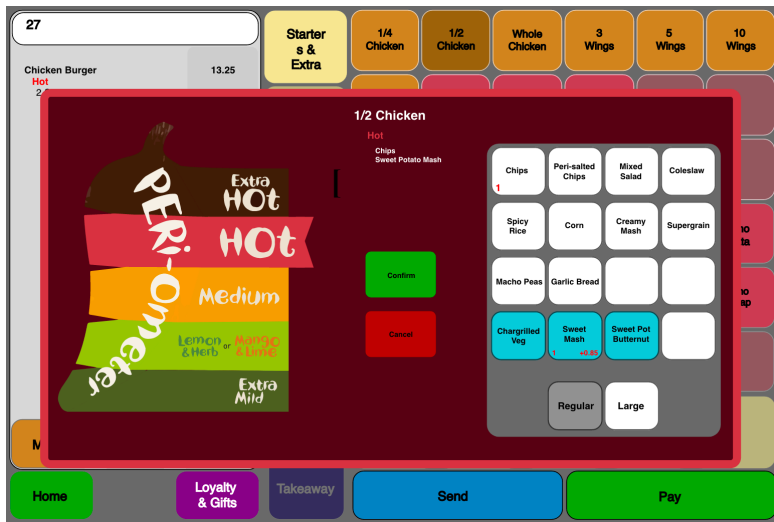
What would you change about the current till systems (can be more than one):

.....



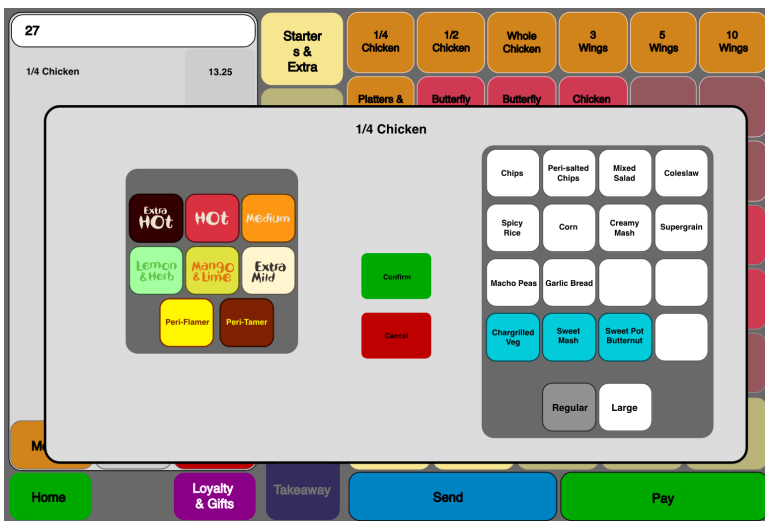
[Fig 3.3]; Qualitative data gathered from the Likert scale section on the survey



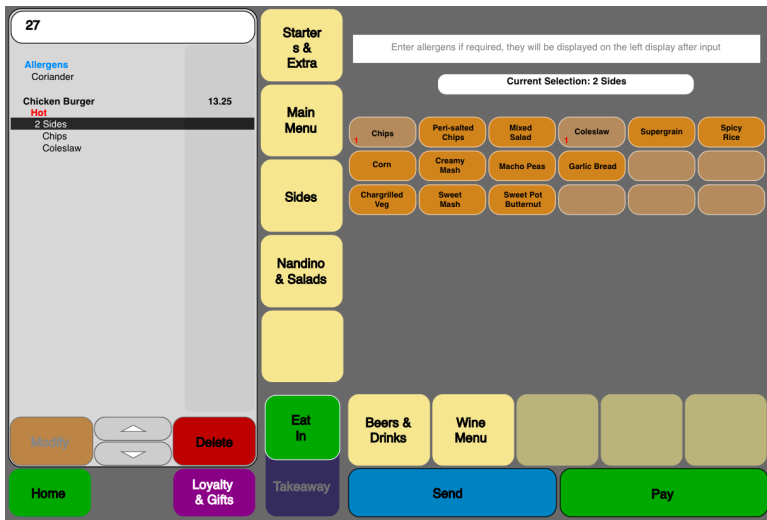


[Appendix 4.1] – The new Designs

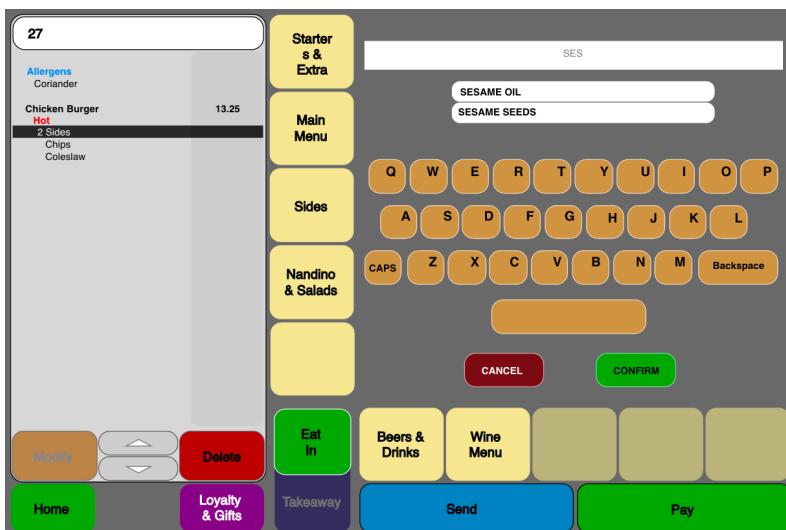
This was my original idea for the pop up designs, however, I felt like the chilli was unnecessary and just made it feel a bit to overdone



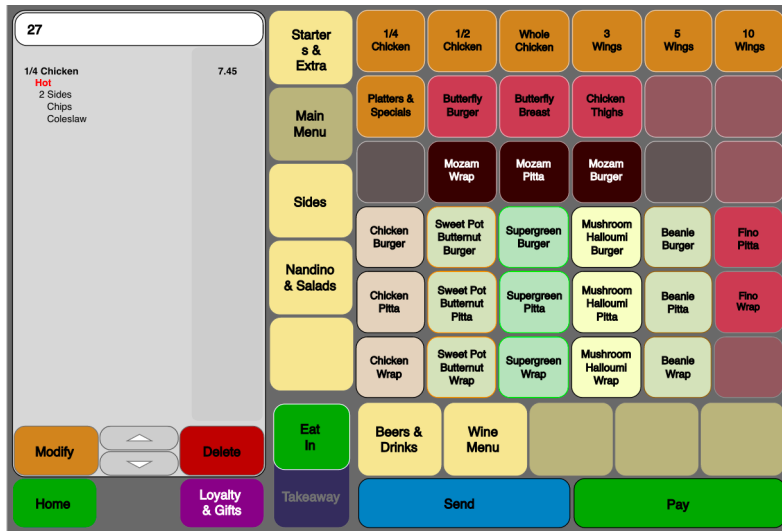
I reworked the pop up menu to look like so; much more sleek and easier to read, there's no reason to go through multiple popups, all the selected items are now on one individual screen



This is the modify section, here we see the '2 Sides' selected, so it's giving available mods for that selection. The allergy bar at the top is also always there, pressing on it will open up the allergy section



Here we see a simple allergy section, which is a keyboard used to type the allergen, database searches anything that matches and gives it as a suggested click



This is a rework of the main page, with different colours for veggie options, and a different layout for the bottom section. This makes it look, clean, slick, and more newbie friendly.

<https://youtu.be/VyZHLZC6grg> - A video I made showing some animations on AdobeXd