

Virtual Pizza Maker

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The Problem

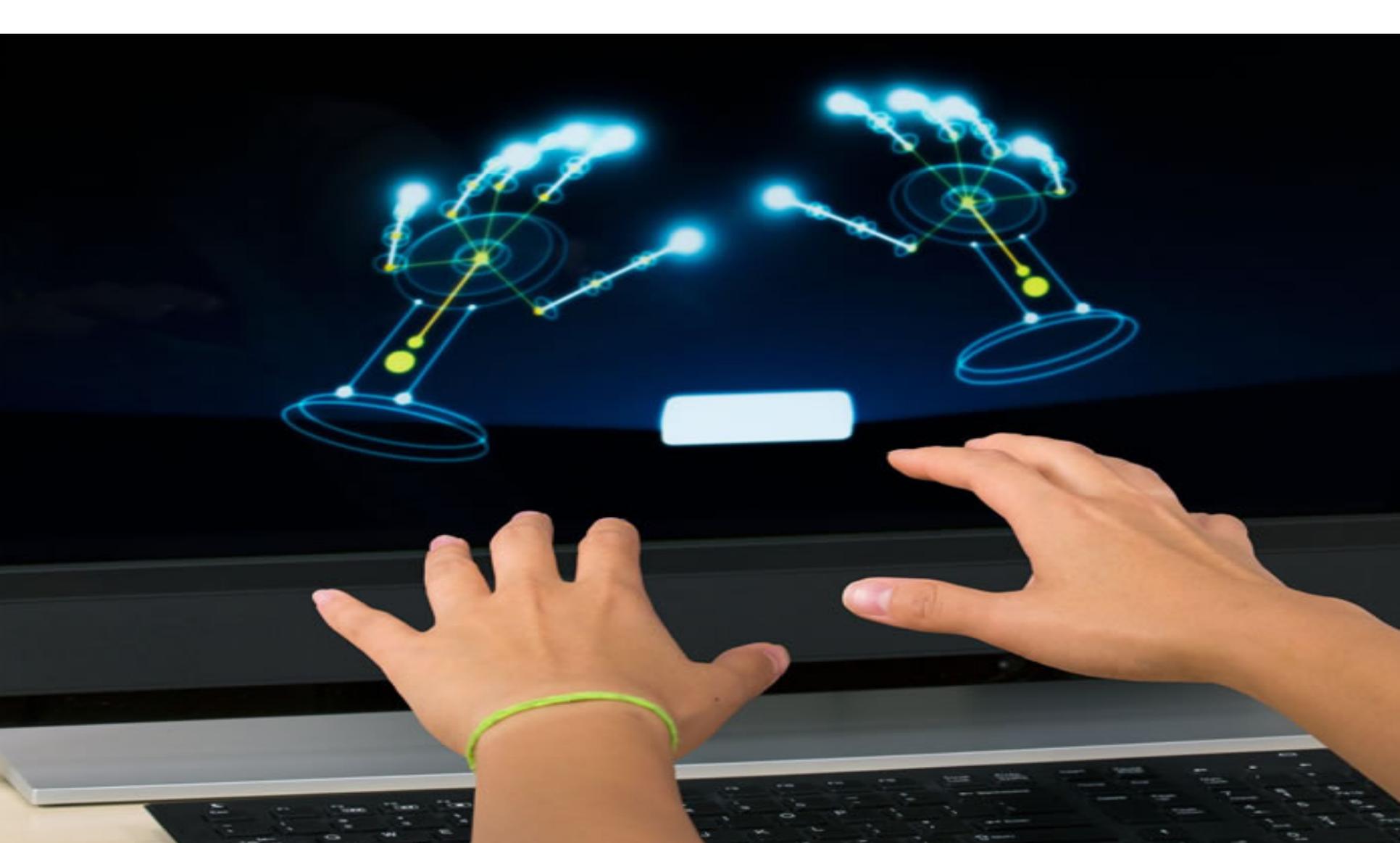
- Develop a system to create pizzas which closely mimics actual pizza creation.
- Use modern technologies

Our Solution

- Using a leap motion to develop an application where a user creates a virtual pizza

What is Leap Motion?

- Leap motion is a device that allows you to do all the little things you do with a computer, simply using the natural motions you do everyday.



The Leap Motion

How Leap Motion works

- Leap Motion uses infrared cameras and LEDs to sense a 3 foot hemispherical area above the device.
- This allows the freedom to point, wave, reach, and grab things in a digital environment just as you would in a real, physical environment.

Why A Leap Motion?

- Putting your pizza together should be as easy as simply throwing your ingredients on the pizza.
- Using a Leap Motion, you can do the same motions you would use in your own kitchen to create a virtual pizza.

Development

- Two versions of the GUI
 - Artwork is easier than writing software
- One version of the Software
 - Software takes a long time to develop
- Layout was determined before Usability testing to allow more time for software development.

Laying out the display

- Mimic an actual pizza preparation station.
- Add instructions and labels on the board in such a way as to obstruct the ingredients.

Instructions

- Grab the ingredients from the right, and place them on the pizza
- When finished grab the cook button and your pizza will be cooked



Ingredients



Sauce



Cheese



Pepperoni

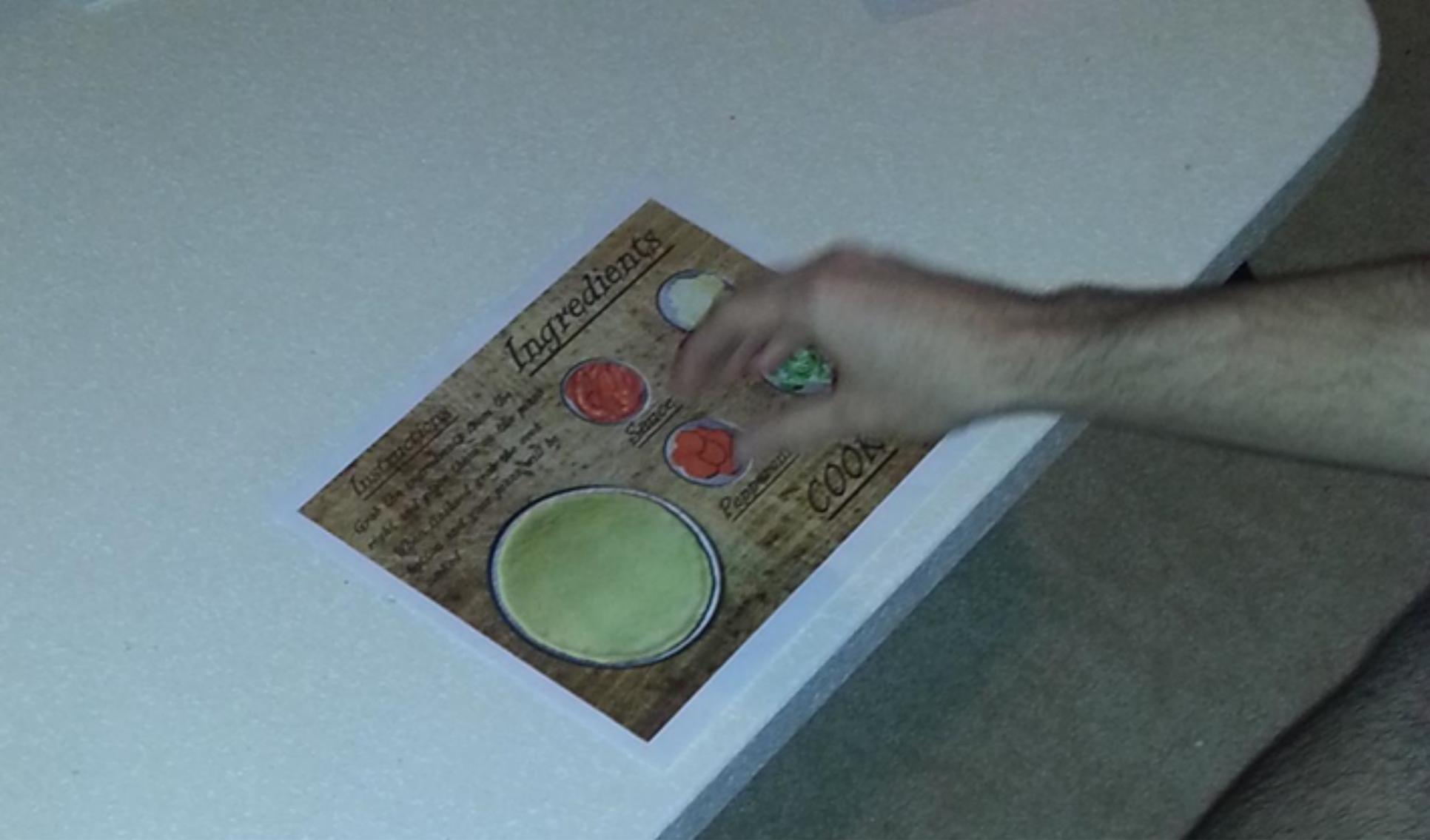


Green Peppers

COOK

Testing The Display

- We used a paper based test where subjects grabbed and moved imaginary ingredients.
- We gave no more instruction than what was on the interface.
- The motions the test subjects used was all their own ideas, we used this data to build our program's mechanics.



A picture of the testing

Test Results

- Three testers used for paper layout test
- All had used a pizza creation tool previously
- All felt that the interface influences app use significantly

Learning From The Tests

- We learned our original layout was well designed
- The original text for the instructions was somewhat difficult to read
- The “cook” button needed to be more defined

Instructions

- 1) Grab the ingredients you want and drop them on the pizza.
- 2) When finished press the cook button.



Ingredients



Sauce



Cheese



Pepperoni



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Developing The Code

- Application was developed on top of the LeapMotion SDK
- All animation/drawing happens on top of a HTML5 Canvas Element
- Due to the presentation requirements, Javascript was a natural choice.
- Developed using a pluggable “Listener-based” architecture.

Developing a Final Product

- The challenge was to be able to develop a “looks like / works like” prototype during testing phase.
- After testing was complete, a new graphical design was implemented with very little code modification.

Recommendations For Improvement

- Add more ingredients
- Refine the graphics
- Develop standalone unit to use in pizza shops

Demonstration