Slide 1

Ordering Pizza Using Internet Of Things

Workshop One   With Miss O'Brien & Mr McNally

1

Slide 2

Introduction

- **Who am I?** My name is **Miss O'Brien**, I am a student in Cardiff university. I am studying **computer science**!
- I learn about how computers work and I try to use them to solve problems.
- I am going to be working with you all to try to design a new solution to a problem…
- Today I brought **Mr McNally** with me to help out, he is also a computer science student like me.

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

2

Slide 3

The Study

What is a study?
- A study is a process that universities and scientists follow to learn something new about something.
- We research the topic, design an experiment to test our ideas, gather results and then make conclusions from these results.

3

Slide 4

The Study

What is *this* study about?
- This study is called Ordering Pizza Using Internet of Things.
- **Internet of Things** is a funny term computer scientists came up with to refer to all the little computers that can be in anything and can all be connected.
- **Examples include:** Google Home, Cars with Internet Maps, Smart TVs, Smart lightbulbs and many more.
- **My study** will be a way of ordering pizza using one of these small computers.
- **Aim:** I want to make sure that when you order a pizza using this system you learn something about healthy eating and you have fun using it.

4

Slide 5

The Study

What are we doing today?
- Well, I could design something by myself and give it to you to use …but what if I make the information it shows you too easy for you so you don't learn anything from it? ….What if when you use it you think it's just a bit boring? …..
- Instead, I am going to ask your help to design it, and then I am going to try and build what you tell me to design.
- Ethics /Consent forms
- What is design? Do you all understand what I mean by that?

5

Slide 6

First, Let's talk about Nutrition

6

Slide 7

What do you already know about healthy eating?

- I'm going to give everyone a short quiz, don't worry if you don't know the answers just do your best and we will talk about the answers in a moment.
- Please don't copy or talk to your neighbour about the answers, it's better I know how much you really know than for you to get a higher score dishonestly!

7

Slide 8

Nutrition Lesson Overview

- ❑ Basics –
  - ❑ the purpose of food
  - ❑ food groups
  - ❑ 5 a day
  - ❑ the eatwell plate
  - ❑ variety in diet
- ❑ No bad foods and good foods – better choices
- ❑ Does pizza have to be a bad food?
  - ❑ How can we make pizza healthier?
- ❑ Lets design!

8

Slide 9

Why do we eat food?

- To fuel us - So we can move and function.
- It's **good for us** – good for our bodies and good for our minds.
- Eating is **enjoyable**! Food tastes good so it is a pleasure to eat good nutritious food.

- Eating *healthy* food helps us to move faster and for longer, to concentrate in school and learn more. It gives us energy- If we eat good food we will be less tired less often.
- So what does healthy food look like?

9

Slide 10

The Eatwell Plate

- How does it work?
- The Eatwell Guide divides the foods we eat and drink into 5 main food groups.
- Try to choose a variety of different foods from each of the groups to help you get the wide range of nutrients your body needs to stay healthy.

10

Slide 11

The Eatwell Plate

- There are **5 sections** of the Eatwell Plate:
  - Fruits and vegetables
  - Potatoes, bread, rice, pasta and other starchy carbohydrates
  - Beans, pulses, fish, eggs, meat and other proteins
  - Dairy and alternatives
  - Oils and spreads

11

Slide 12

The Eatwell Plate

- There are **5 sections** of the Eatwell Plate:
  - Fruits and vegetables
    - This is the biggest section, so we should eat the most of this. It is green in the image. About a third of our daily food should be veg.
    - Everyone should have at least 5 portions of a variety of fruit and vegetables every day.
    - One portion is about the amount you can fit in the palm of your hand.

12

The Eatwell Plate

- There are **5 sections** of the Eatwell Plate:
  - Potatoes, bread, rice, pasta and other starchy carbohydrates
    - This is the second biggest section so we should aim to have almost a third of our daily food be from this group. This is the orange section.
  - Beans, pulses, fish, eggs, meat and other proteins
    - This is the next biggest section, in pink. You should aim to have some meat or beans each day – but much less than vegetables or carbohydrates.

13

The Eatwell Plate

- There are **5 sections** of the Eatwell Plate:
  - Dairy and alternatives
    - This is the blue section – it is important to include some but not very much dairy or soya.
  - Oils and spreads
    - This is the smallest purple section. You don't need to include very much oil at all but some oily fat is good to include in a healthy diet.

14

The Eatwell Plate

- We also need to aim to drink 6-8 cups of fluid a day.
- **Water, lower fat milk, sugar-free drinks including tea and coffee all count.**
- Limit fruit juice and/or smoothies to about half a cup a day.

6-8 a day

15

The Eatwell Plate

- It's important to get some fat in your diet, but foods that are high in fat, salt and sugar have been placed outside of the circular image as they're not necessary as part of a healthy, balanced diet and most of us need to cut down on these.
- Unsaturated fats from plant sources (for example, vegetable oil or olive oil) are healthier types of fat.
- These foods include chocolate, cakes, biscuits, sugary soft drinks, ghee and ice cream.
- They're not needed in our diet, so should be eaten less often and in smaller amounts.

Crisps

16

Not "Bad Food", Better choices….

❑ The Eatwell Plate gives us a good guide as to what we should eat and in what amounts.
❑ Its important not to feel guilty about the food we eat, it is okay to eat sweets and cake on occasion, but we should try to choose healthier options more often.
❑ We should look for ways to make "unhealthy" meals healthier where we can.

17

So, is pizza bad for you?

- This is a bit of a trick question – your parents or teachers may have told you that pizza is bad for you and that can be true, but it depends on a few things:
- How often do you have pizza?
- What toppings are you choosing?
- What type of crust does the pizza have?
- How big is your portion?
  - How much pizza are you eating when you eat it?

18

Healthy Pizza Swaps!

- Crusts – thin pizza crust is better than a thick crust, and both are better than a stuffed crusts, as this can change the balance of toppings to carbohydrates..
- Dough – there are different ways to make doughs which change how good they are for you. For example you can add wholewheat or brown flour instead of white flour, or mix half and half, this is a better choice for extra fibre.
- Meats – Salami and Pepperoni are very salty meats, extra salt is added so that they last longer. Choosing less salty meat like chicken or even choosing vegetables instead is the better choice to make more often.
- Portion size – Eating a smaller version of the same pizza can be a healthier choice as overall you will eat less salt etc.

19

Let's Design!

20

Designing: Components, E-Textiles, Brainstorm Ideas

- **Basic Components** – think about what these could tell the user
  - Lights – One colour, multiple colours, flashing lights
  - Making Sound – Buzzer, Music player, People Speaking
  - Power – Battery to power it
  - Vibrations – what can this tell the user?
  - Screen – show words, graphs, images, cartoons
  - Buttons – what can the user tell the design? – choices, navigating menus, count how many times a button is pressed or for how long, etc
  - Switches – can turn something on or off or switch between two 'modes'

21

Designing: Components, E-Textiles, Brainstorm Ideas

Complex Components
Some types of sensors
- Temperature Sensors – measure heat
- Light sensors – measure how dark or bright it is in the room.
- Sound Sensor – how loud are the sounds around it
- Movement Sensors -also called accelerometers, because they measure the speed and direction, or acceleration of the object. This sensor can help us recognise tilting, tapping, dropping or even what vehicle you might be travelling in.
- Capacitive Touch – don't worry about remembering this word, but this is a type of sensor which can tell if someone is touching it, and how hard they are pressing.

22

E-Textiles, Components, Brainstorm Ideas

- Don't forget you can always add your own ideas which aren't listed here. Just draw them using the paper provided
- Be creative! Have fun! Try to make some impossible designs and we can see if we can make them real….

23

What is a circuit?

We will look at circuits in more detail later, but right now lets think of electricity as a car driving in a loop around a big roundabout.

The car can't keep driving if there are any breaks in the tarmac.

But the car can take loops off the roundabout and back.

As long as the circuit is unbroken (and the components are connected in the right direction) then the electricity can continue to loop.

24

What does the circuit have to be made of?

Usually we think that circuits have to made of wires connecting components.

That's one type of circuit. Another uses a Printed Circuit Board (or PCB) and instead of keeping the metal wires separate, they print the tracks between the components onto a board, like this:

➢ I want to use a newer special type of circuit. E-textiles!
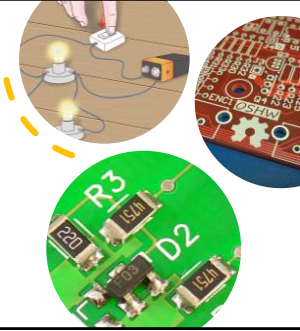
25

Designing: Components, E-Textiles, Brainstorm Ideas

E-Textiles allow you to sew the components to fabric. Some people use these to make clothes you can wear which also have lights and sounds in them (images)

They work by using threads of metal within the thread so that electricity can still travel through them.

Demonstration of E-Textiles in action!

Felt Pizza – More eye-catching than hard plastic, different, novelty

Tactile – means fun to touch
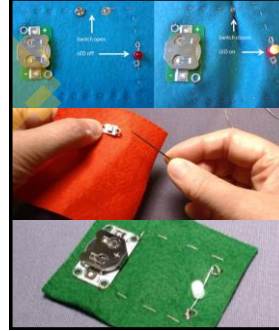
26

Get into groups!

Groups of 4

27

What would a successful tool do?

In your group, make a list of 5 things you think this tool would be able to do if it worked well.

E.g. It would be easy for me to use.

It would teach me what pizza is healthier.

28

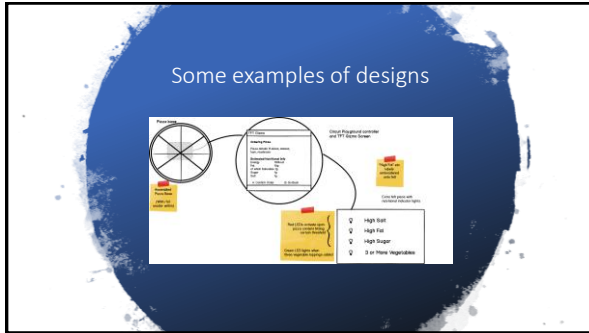## What ideas did we come up with?

29

What would your tool look like? What does it do?

In your group, draw some ideas for what the tool might look like.

Does it have lights? Does it have sounds?

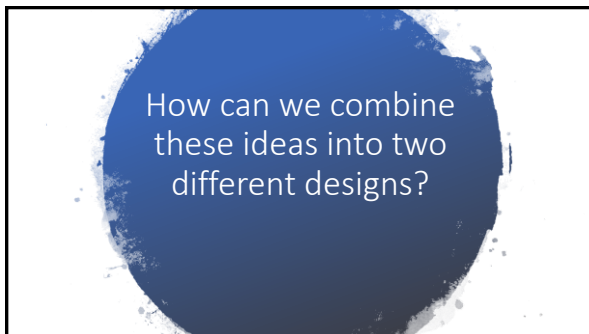How does someone learn about healthy eating from your tool?

30

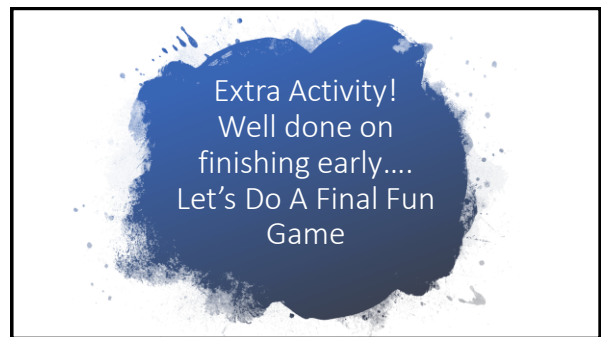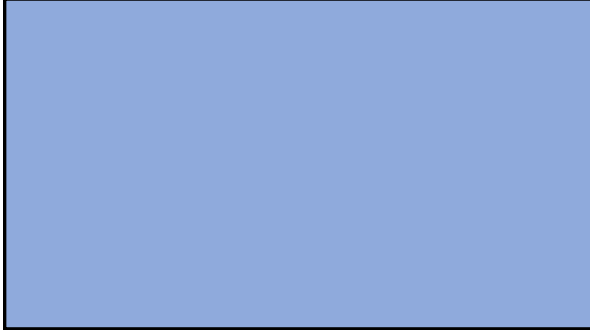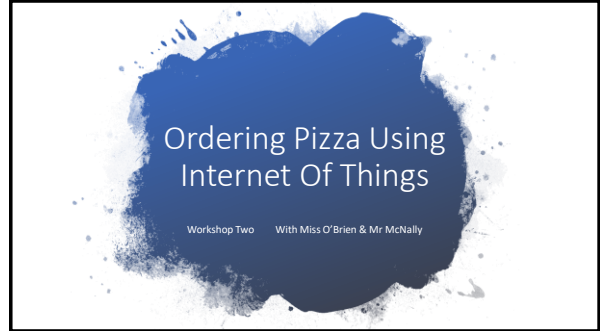Some examples of designs

31

What ideas did we come up with?

32

How can we combine these ideas into two different designs?

33

Thank You for your help!

Next Time	See you in a few weeks for the next workshop.
>	Hopefully next workshop I will be able to bring you two version of these designs which work!
?	Please let me know if you have any questions about anything we have learned about or anything to do with the study.

34

End

35

Extra Activity!
Well done on finishing early….
Let's Do A Final Fun Game

36

37

Ordering Pizza Using Internet Of Things

Workshop Two   With Miss O'Brien & Mr McNally

38

Reminder about study

• Consent , study aim

39

The Study

What are we doing today?
• Well, I could design something by myself and give it to you to use, but what if I make the facts it tells you too easy for you so you don't learn anything from it? What if when you use it you think it's just a bit boring?
• So instead, I am going to ask your help to design it, and then I am going to try and build what you tell me to design.
• Ethics /Consent forms
• What is design

40

Review of first lesson

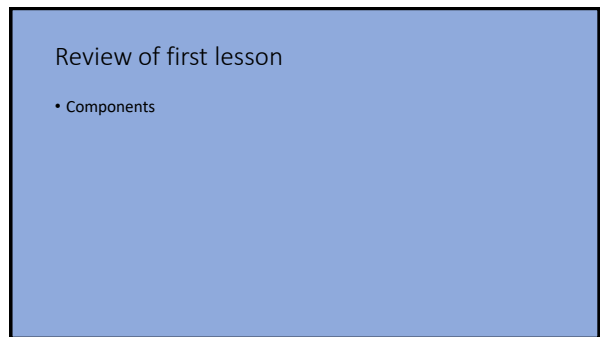• Nutrition

41

Review of first lesson

• Components

42

More about components

• Components

43

What did we design

• Success criteria
• Two models

44

What I made

45

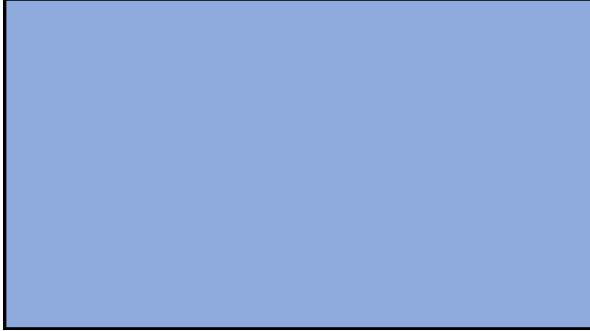## How it works

46

How it works

• Prototype 2

47

Limits – Why can't it do everything we hoped?

• Its very common when you design something to find there is a gap between everything you wanted it to do and what you can actually make it do.
• An example of this:
• Does this mean I've failed? No, its important to know that things can go wrong or not according to plan but just because a small part doesn't work does not mean the whole project is a failure. It just means I have to learn from my mistakes and think of another way to things.
• Example:

48

49

50

Next Time — See you in a few weeks for the next workshop.

Thank You for your help!

> — Hopefully next workshop I will be able to bring you two version of these designs which work!

? — Please let me know if you have any questions about anything we have learned about or anything to do with the study.
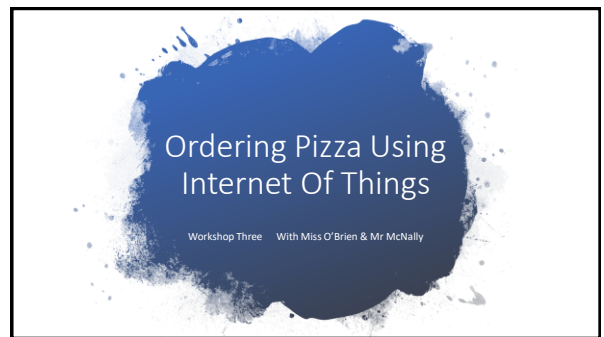
51

End

52

Extra Activity!
Well done on finishing early….
Let's Do A Final Game

53

54

Ordering Pizza Using Internet Of Things

Workshop Three   With Miss O'Brien & Mr McNally

The Study

What are we doing today?
- Well, I could design something by myself and give it to you to use, but what if I make the facts it tells you too easy for you so you don't learn anything from it? What if when you use it you think it's just a bit boring?
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- Ethics /Consent forms
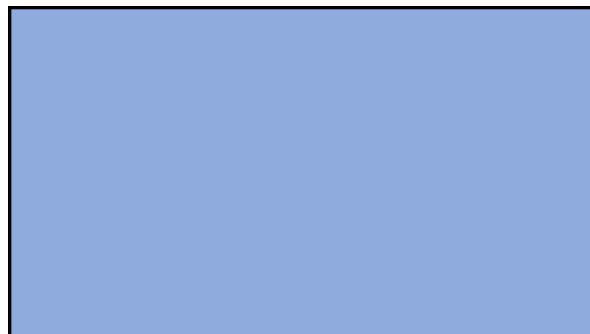- What is design

55

Design Process

So far we have completed these steps in the design process :
1.
2.
3.
4.

The next step is:
5.

56

57

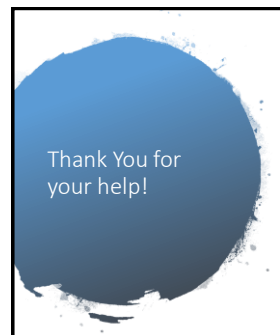## What do you know now about healthy eating?

- I'm going to give everyone a short quiz, this is the same quiz that you did at the start of the
- don't worry if you don't know the answers just do your best and we will talk about the answers in a moment.
- Please don't copy or talk to your neighbour about the answers, it's better I know how much you really know than for you to get a higher score dishonestly!

58

What's Next For the Project

- Next I will ….
- Then I will….
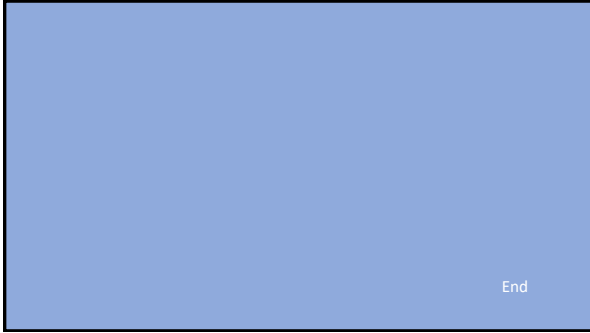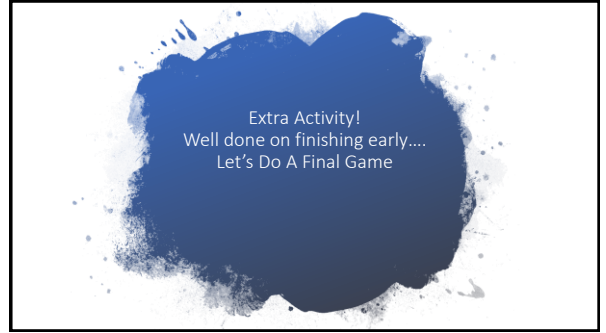- I couldn't have done this without you
- (stickers)

59

Thank You for your help!

>	That's it! The end of our workshops, I hope you have all enjoyed them. Thank you all for helping me complete my project!
?	Hands up, what have you learned?
?	Please let me know if you have any questions about anything we have learned about or anything to do with the study.

60

End

61

Extra Activity!
Well done on finishing early….
Let's Do A Final Game

62

63