LITTLE BIG FUTURES

Fighting fires with the Internet of Things

DESIGN AND TECHNOLOGY STUDENT BOOKLET

Objective:

Design a piece of equipment that can be used by a firefighter that demonstrates how the Internet of Things (IoT) can make their lives safer and their work more efficient.

Design context:

Every day, firefighters perform a range of tasks and overcome challenges to keep the public safe. Your task is to research the different tasks that firefighters perform, the equipment they use and the environments they work in and using your knowledge of the Internet of Things, improve the equipment that they use to make their jobs safer and more efficient (eg saving time, materials and money).

Research

Find out about the types of tasks firefighters do. When they aren't working to put out a fire, what other tasks do they do as part of their job?

Once you have a clear idea of the tasks that firefighters undertake, record the environments that they work in, the types of equipment that they currently use to do these tasks and the challenges or problems they face.

Top tip! Could you contact a firefighter and ask them about their job? Designers often research new ideas by interviewing people that use their products.

Design

Using your research, think about where the Internet of Things could make their jobs safer and more efficient (eg saving time, materials, money). You might choose to improve a piece of existing equipment or invent a completely new Internet of Things product.

Model or draw your idea so that you can communicate it to your teacher. Remember, designers often have more than one idea when trying to solve a problem. Record all of your ideas and decide which one you would like to continue to develop.

Top tip! Use plasticine or blue tack to create a quick model of your idea. Take photos of each model and use these photos to record and help you compare your ideas against each other. You could use materials like cardboard, paper, textiles and sticky tape to create a larger model and test what it would be like in real life to use.

Prototype

Now you have your chosen idea to develop, you need to prototype how the Internet of Things part of your idea will work. What functions will it have? How will these functions be controlled?

Try using the micro:bit or another programmable controller to prototype how your idea will work.

Top tip! Maybe you could ask your computing teacher to help? Designers will often work with other specialists to help create ideas and bring new skills to a project.

Top tip! Could you contact a firefighter to see what they think of your idea? Getting information from the person who might use your device is something designers do in real life to test their products.

Present

To earn your Discovery CREST Award you will have to present your work, describing what you have achieved to your teacher / class.

The quality of your presentation will be assessed against the following objectives:

- quality of research
- creativity of idea
- use of Internet of Things technology
- communication of ideas

Don't forget to complete your CREST Discovery passport as you go. Take photos, videos, draw pictures and write note to show what you have done to complete the project.

Evaluate

The next stage in your design process is to evaluate your prototype. What would you change about your idea now you have a prototype? Would you do anything differently next time if you were to do this project again? Record your ideas and maybe you will have some time in the future to make improvements!