Introduction

A successful group project should be able to identify a problem and tackle the problem in an innovative way, regardless of technical difficulty. Software focused, hardware focused (using microbits) or a combination of both are all valid ways you can tackle the problem identified. In general, software focused group projects are easier to implement and test, although hardware focused group projects can be more interesting. Consequently, we recommend software-oriented solutions to problems due to the timeframe and available resources. A combination of software and hardware can showcase your technical expertise, but this is generally not recommended due to the timeframe you have to complete your group project.

Steps

1. Identifying a problem
2. Brainstorming and evaluating solutions
3. Implementing the solution
4. Testing the solution
5. Re-evaluating the solution

We will go into more detail about each section down below.

Identifying a problem

We want you to identify a problem that is related to our theme – A Connected World. Of course, this theme is very broad and most problems can be linked to this theme somehow.

Problems can be identified from a range of different places all around us: from the need of an accounting system for a service project, to using multiplayer games on the microbit to let people socialise, to making an intuitive RSS feed reader.

We know that finding original problems may be hard – tackling a problem that has already been solved by some other software or hardware is perfectly fine, as long as you have are able to add a unique twist to it. However, finding an original problem in our community will definitely help you score higher on our rubric. If you really cannot think of anything, you can always choose one of the three guided problems provided.

Brainstorming and evaluating solutions

Computer science is a very interdisciplinary field – we have to integrate ideas from design technology etc. when creating software and hardware solutions. Designing and evaluating a solution is extremely important to make sure you have a plan when you want to actually make your product.

It can be hard to brainstorm several different ideas, but we strongly recommend you to come up with 2-4 solutions to the problem you have identified earlier on. Evaluating your solution to choose the best one can be tough, so we have provided a few questions you can ask yourselves during the evaluation process:

1. Does this solution solve the problem effectively and efficiently?
2. What resources will we need to use?
3. How much help might we need from the Help Desk?
4. Can we finish this project in this timeframe?

Once you have completed this section, you can approach our Help Desk to accept your project proposal. Don't worry if your proposal is rejected – you can always revise your proposal for further submission! The Help Desk will always provide constructive criticism to help you improve your initial proposal.

Implementing the solution

This can the most arduous step of the entire process. Creating and implementing your solution takes time and effort. We have tried to break down the whole process for you through breaks, making sure that you have enough time to relax. Your most helpful resource throughout the entire process will be the Help Desk. Our Help Desk consists of highly capable volunteers who have skillsets across a range of topics in Computer Science, and we'll be available to help you with every aspect of your project.

Testing the solution

Once your project is almost complete, you should test it out to make sure that it meets most of the criteria on the rubric. This is the part where you should start referring to the rubric religiously, since your final project will be graded against the rubric. Testing the solution is very important to make sure it works and is able to solve the problem that is identified earlier on effectively.

Re-evaluating the solution

Now that you are almost done, you should re-evaluate your project and see if there are any final touches you need to make to your Group Project. Here are some questions you can use to evaluate your final project:

1. Does this project solve the problem effectively and efficiently?
2. How intuitive is this project to use?
3. Was aesthetics considered in the design of this project?
4. How much time to we have to further improve the project?
5. What other additions to the project can we make in this timeframe?

If you still have time left after the re-evaluation, you can always approach the Help Desk and we'll suggest improvements you can make.

After you are done with everything, it might be a good idea to run through how you will present your project so that the judges know how your project is able to solve a particular problem!