INTERFACE HACKING

Version 1.0
BSc Computing for Games

Dr Edward Powley

Introduction

In this assignment, you are required to design and prototype a novel game controller device. Your prototype should function as an input device, either for the game you developed in COMP130 last semester, or for the game you are developing in COMP150 this semester. Your prototype should use the *MaKey MaKey* platform, which you will be provided with in class, to convert user actions into game inputs.

Computing for Games combines technical and creative skills in equal parts. All of your assignments involve a mixture of the two; in this assignment the emphasis is more on creativity. You will build upon the technical skills you have learned so far, combined with your own creativity and innovation, to produce a unique creative artefact.

This assignment is formed of three parts:

A. Prepare **at least five** weekly reports that must:
   i. Document your iterative design process
   ii. Document the stages of your prototyping efforts. As well as text, you are strongly encouraged to make use of photographs and videos as appropriate.

B. Do a thing

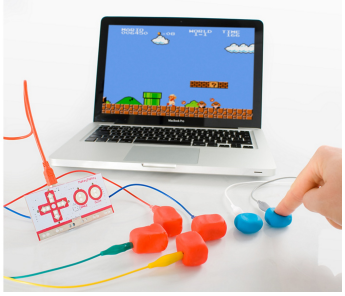
C. Integrate the controller into your game, and prepare a practical demonstration.

Submission Instructions

Part A

Formative submission: fork the GitHub project at TODO, and write your weekly reports in the `readme.md` file. Images should be embedded in the markdown file. If you use videos, upload them to a video sharing site (e.g. YouTube, Vimeo, Vine) and add a link to them.

Summative submission: create a .zip archive containing the contents of your GitHub project. Upload the zip to LearningSpace. If you have used videos, compress them in .avi or .mp4 format and add them to the zip. **Images and videos that are not uploaded to LearningSpace will not be considered for marking.**



The *MaKey MaKey* allows a multitude of materials to be used to create videogame controllers.

Part B

Blah

Part C

No formal submission is required. Please attend the demo session (date and time to be confirmed in class) with your prototype and an executable of your game, and be prepared to discuss it with your tutors and peers.

"Alive with new thinking, buzzing with opportunity, connected with the best in the business, Falmouth University is the perfect place to start shaping your creative career. Thousands of people from around the globe come to us every year, graduating to become the brightest stars in art, design, media, performance and writing industries.

"Voted the number one institution worldwide across seven categories in the latest International Student Barometer poll, Falmouth has forged its position as one of the most highly regarded creative arts institutions across the globe."

— Falmouth University website

Rhythm games such as *Guitar Hero* and *Rock Band* are excellent examples of games which make use of unique input devices to enhance gameplay.

Additional Guidance

Falmouth University is nationally and internationally renowned as an arts institution. Despite the fact that you are studying for a Bachelor of Science degree in a technical discipline, you are still expected to strive for the same level of innovation and creative flair as your fellow students on courses outside the Games Academy. This assignment is an opportunity to flex your creative muscles, without getting too bogged down in the technical aspects of writing functional and maintainable code.

We have given you some of the materials you need: a MaKey MaKey kit, crocodile clip leads and conductive paint. You will need to add your own materials to produce a working physical prototype. You do not need to go to great expense for this: a "Blue Peter" style prototype made from household items is fine, as is something made out of Play-Doh, Lego bricks, etc. However you should still choose your materials carefully, as overly flimsy construction will lose you marks for the functionality criterion.

You have been issued with version 1.2 of the MaKey MaKey kit. Earlier versions of the kit were based on the Arduino platform, and thus were easily reprogrammable at the firmware level (as you may discover in the course of your background research). Unfortunately this version is not.

Do not be constrained by the fact that the layout of the MaKey MaKey board is reminiscent of a classic NES-style game controller. Instead, treat the pads as six on-off inputs to be interpreted by your game in whatever way is appropriate, and remember that a further 12 inputs are available through the pins on the back of the MaKey MaKey.

Additional Resources

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The *Dreamcast Fishing Controller*, released as a peripheral for the game *Sega Bass Fishing*. Even peripherals which appeal to only a small audience can enjoy moderate commercial success.

Marking Rubric

Criterion	Weight	F (0 – 39)	D (40 – 49)	C (50 – 59)	B (60 – 69)	A (70 – 79)	A* (80 – 100)
Design of the solution	15%	F	D	C	B	A	Astar
Development journal	10%	The development journal is incomplete or not submitted.	D	C	B	A	A*
Innovation and creative flair	30%	Demonstrates no evidence of innovation and/or creativity. The brief has not been followed, or the provided hardware has not been added to in any way.	Demonstrates evidence of emerging innovation and/or creativity. The solution is purely derivative of existing devices on the market.	Demonstrates evidence of progressing innovation and/or creativity. The solution is mostly derivative, with some attempts at innovation.	Demonstrates evidence of partial mastery of innovative and creative practice.	Demonstrates some evidence of mastery of innovative and creative practice.	Demonstrates much evidence of mastery of innovative and creative practice.
Functionality of physical prototype	20%	A physical prototype is not produced, or the prototype is completely non-functional.	The physical prototype is barely functional. There are serious technical and/or constructional flaws.	The physical prototype is somewhat functional. There are obvious technical and/or constructional flaws.	The physical prototype is mostly functional. There are minor technical and/or constructional flaws.	The physical prototype is functional. There are superficial technical and/or constructional flaws.	The physical prototype is functional. The technical execution and physical construction are flawless.
Sophistication: software, electronics, physical construction	10%	The solution lacks even a basic level of sophistication in any of the three areas.	The solution is basic and unsophisticated in all three areas. Little insight has been demonstrated in any area.	The solution is moderately sophisticated in one of the areas, but lacking in the other two. Emerging insight has been demonstrated in at least one of the areas.	The solution is moderately sophisticated in two of the noted areas, but lacking in the third. Much insight has been demonstrated in at least one of the areas.	The solution combines somewhat sophisticated software, electronics and physical construction. Significant insight has been demonstrated in at least two of these areas.	The solution combines highly sophisticated software, electronics and physical construction. Exemplary insight has been demonstrated in all three areas.
Maintainability	10%	F	D	C	B	A	A*
Professional practice	5%	GitHub has not been used.	Material has been checked into GitHub only a few times, and only when required for formative or summative submission.	Material has seldom been checked into GitHub.	Material has quite regularly been checked into GitHub.	Material has regularly been checked into GitHub.	Material has regularly been checked into GitHub. There is evidence of engagement (e.g. voluntarily reviewing peers' code) within the Falmouth Games Academy