

MARVIN: A 3D Printed, Internet Enabled Product Design and Staff Development Project

18/01/2019

Abstract

- A staff and curriculum development project instigated within the context of educational professional development
- I was requested to write two 5CP masters degree modules based on my Internet of Things IoT research
- The modules focus on the design and build of a 3D Printed, Internet enable product destined for the IoT marketplace

Staff Development

Common complaints

- This is a waste of my time, I've been over this subject several times before and do not need to do it again
- My time would be better spent keeping up with advances in my own discipline

But what about the need to expand into new areas and new skillsets

Continuing Professional Development

- We have a need for a highly skilled workforce
- IoT is creating lots of new high tech jobs
- Manual and low skilled jobs are in recession

This means

- It's critical to keep higher education learning and teaching relevant to developing learners that can take advantage of this highly skilled jobs market place

Lifelong Learning

- It is my view that life-long learning is one of the key elements that make for a happier life here on Earth!

Just ‘sweet sentiment’?

The National Institute of Adult Continuing Education (NIACE) ([\(NIACE\), 2019](#)) amongst others; see the work of ([McNair, 2019](#)) and a summary of “The Impact of Lifelong Learning on Happiness and Well-being” ([Sabates & Hammond, 2019](#)).

Introduction

Mobile Technologies in Education - **a different take**

- We might think of Padlet, Kahoot, Slack, Trello, Asana
- This project places the design of the Mobile Technology at the centre of the learning experience

The Project

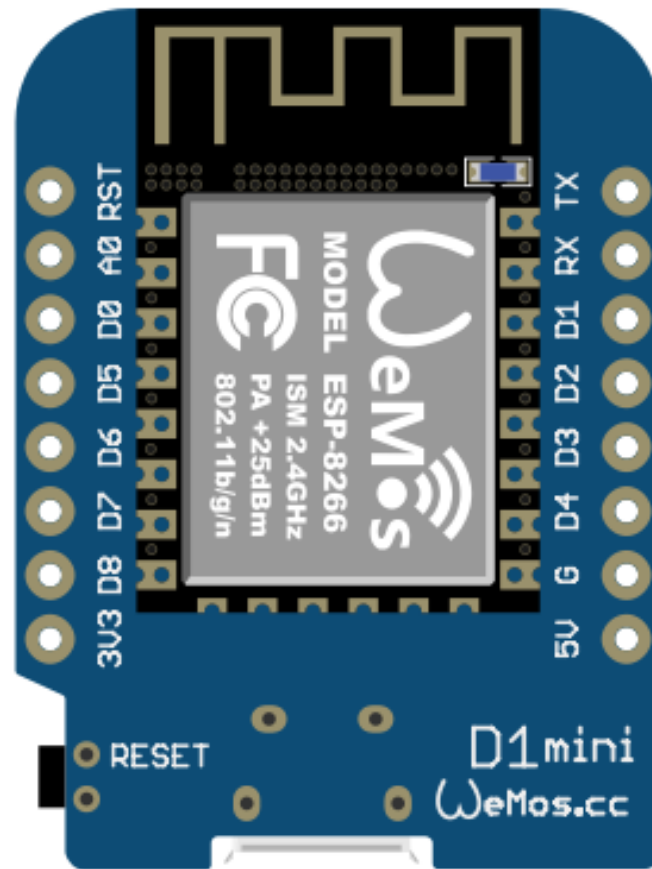
- Started off as a bit of a joke
- Rubber purple hair etc.
- But we should practice what we preach
- IoT job opportunities for my students
- Very little time to implement interdisciplinary team project 26 hours total allocation
- Time allocations to other staff (AQF +1 etc.)

The Plan

- To execute the project and assignments within the interdisciplinary staff team prior to delivery of the module to students
- Specifics of soldering, electronic design, programming and coding decisions are beyond the scope of this paper. (files shared on GitHub)

So to the design decisions regarding execution of the assignments.

The D1 Mini - or at least one version
of it!

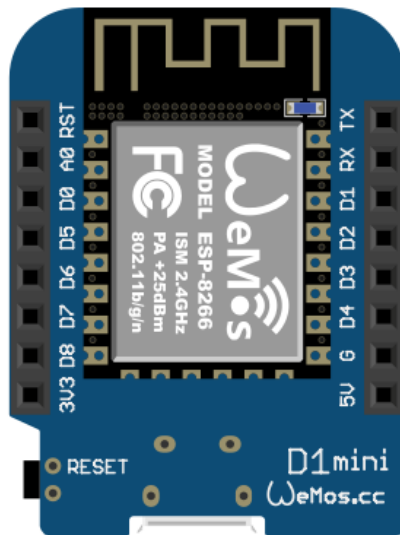


Versions

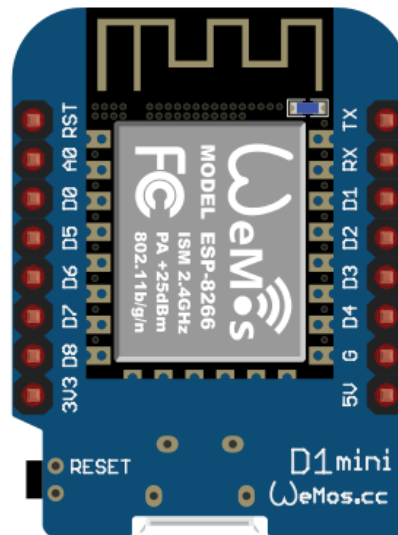
WeMos D1 mini

Header configurations

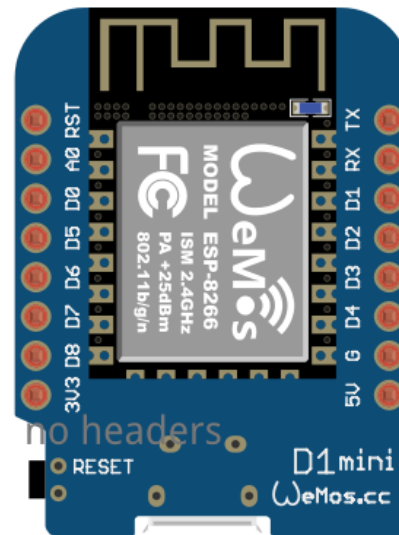
Female above



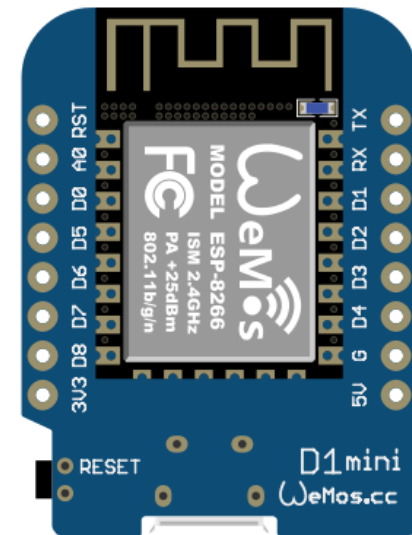
Male above



Male below



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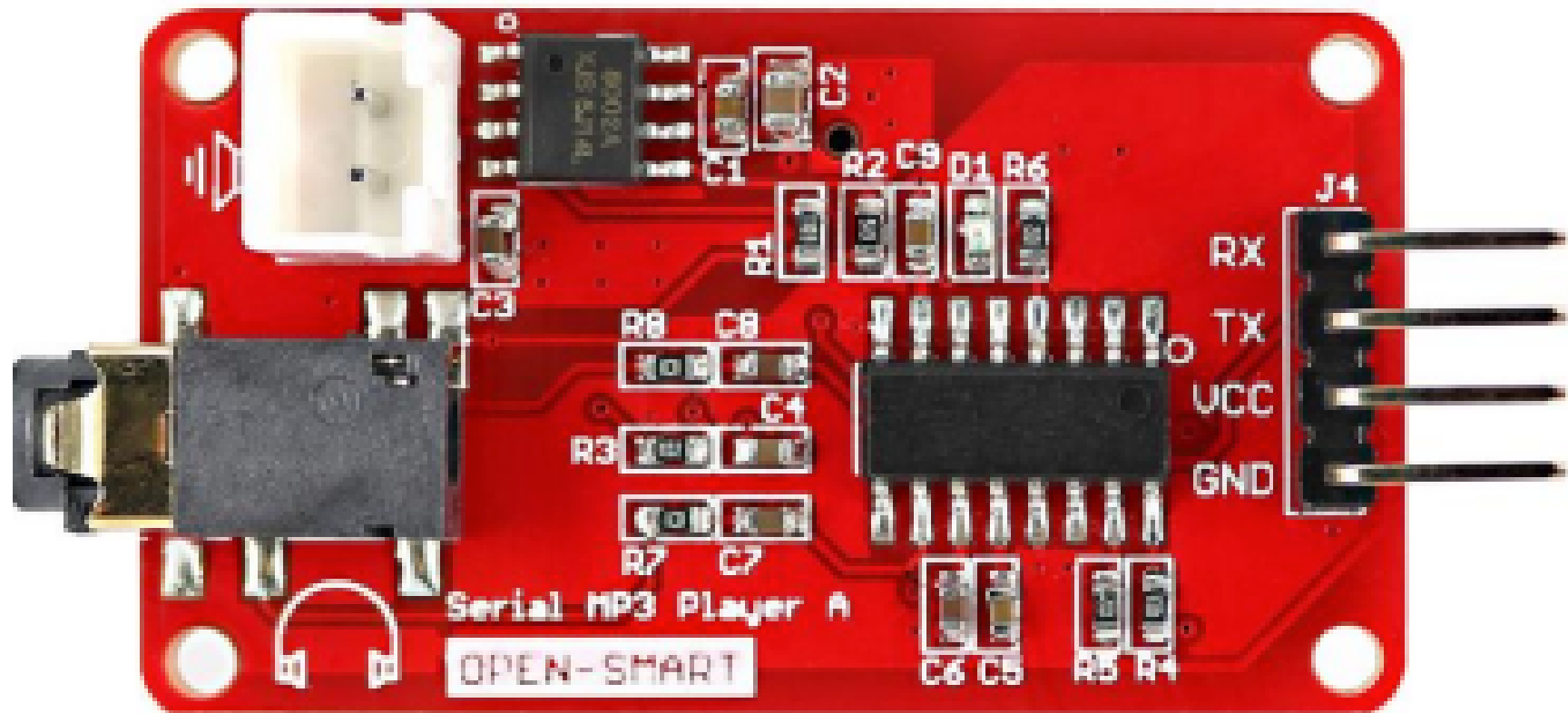


fritzing

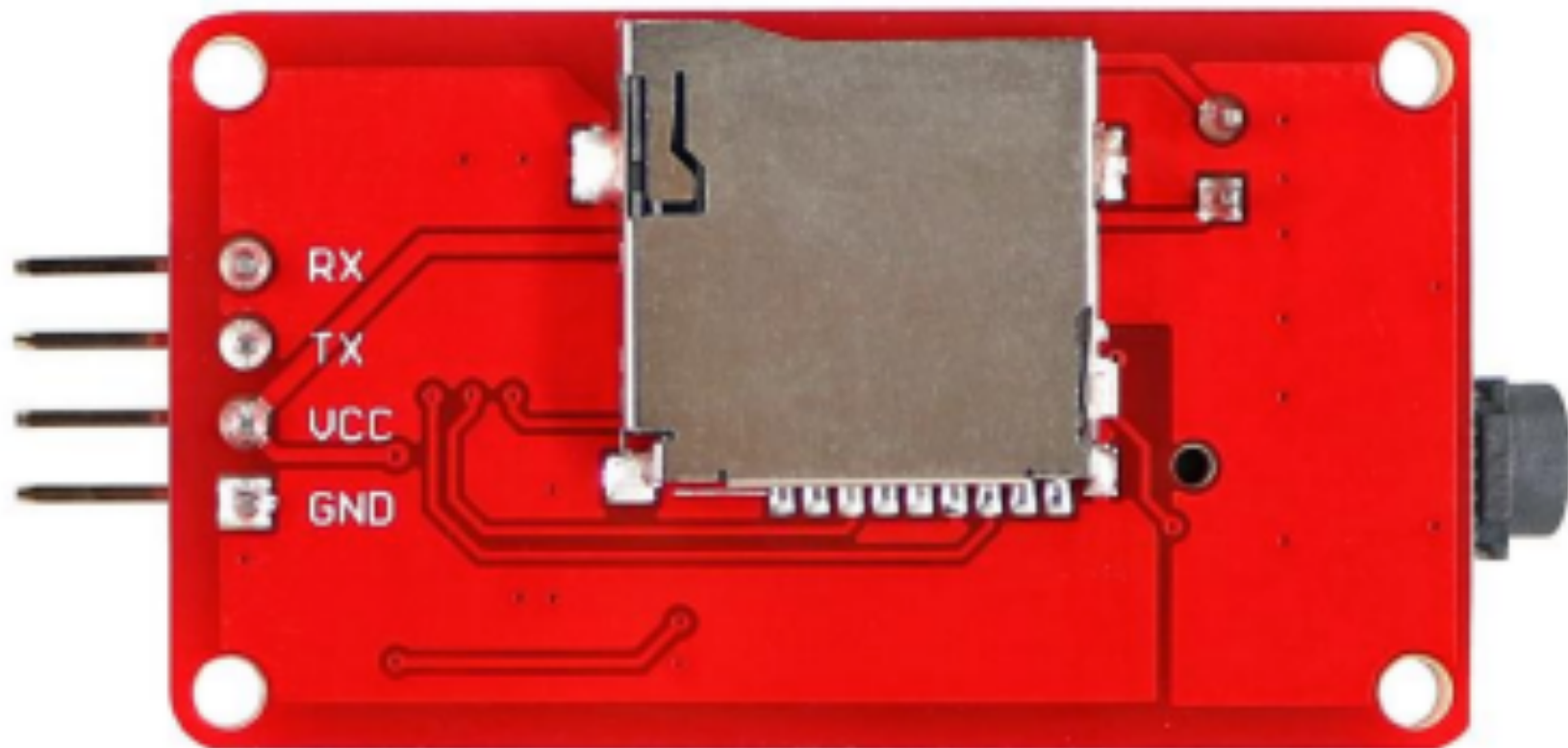
Wemos OLED Shield



OPEN-SMART mp3 Player



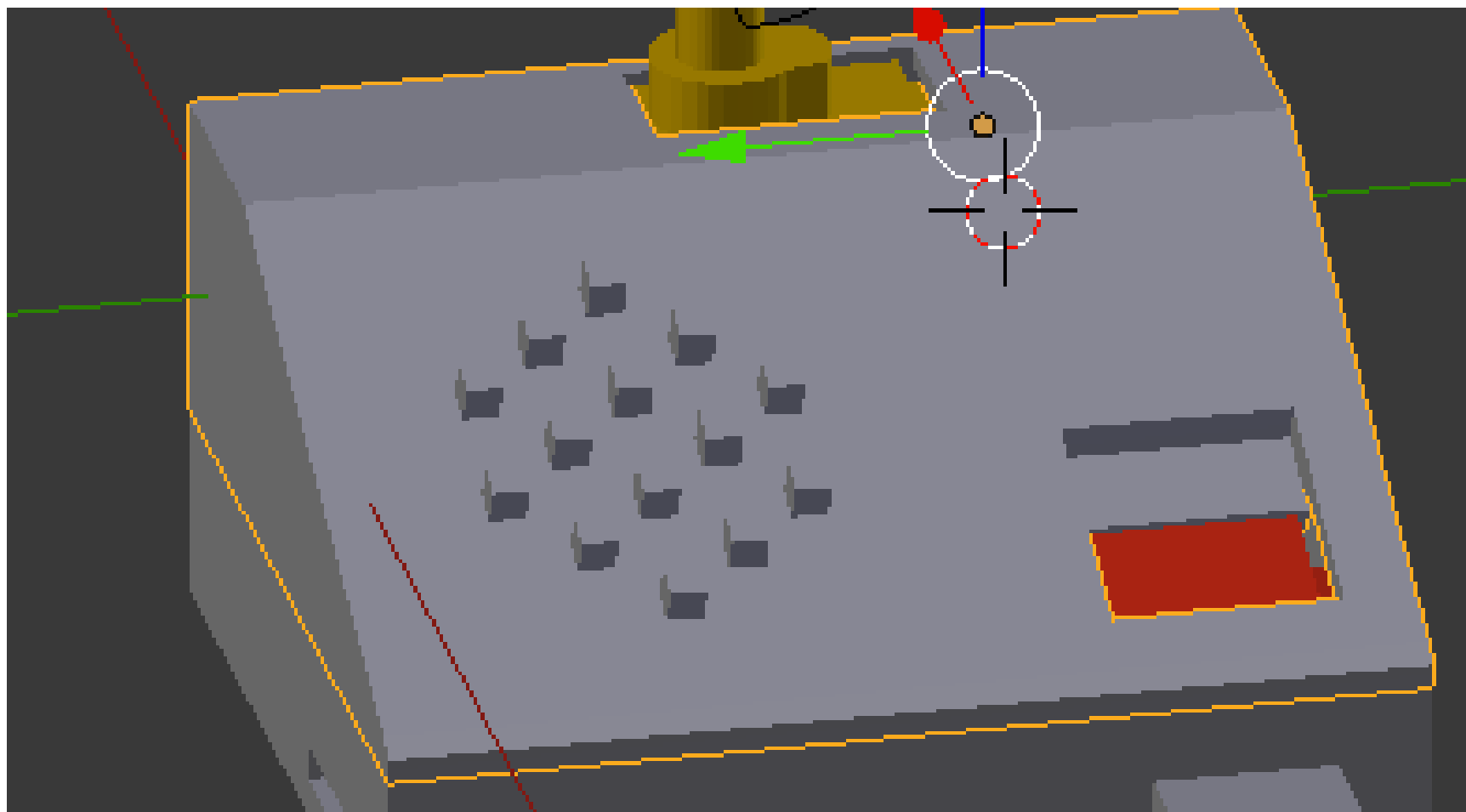
With Micro SD Card Reader



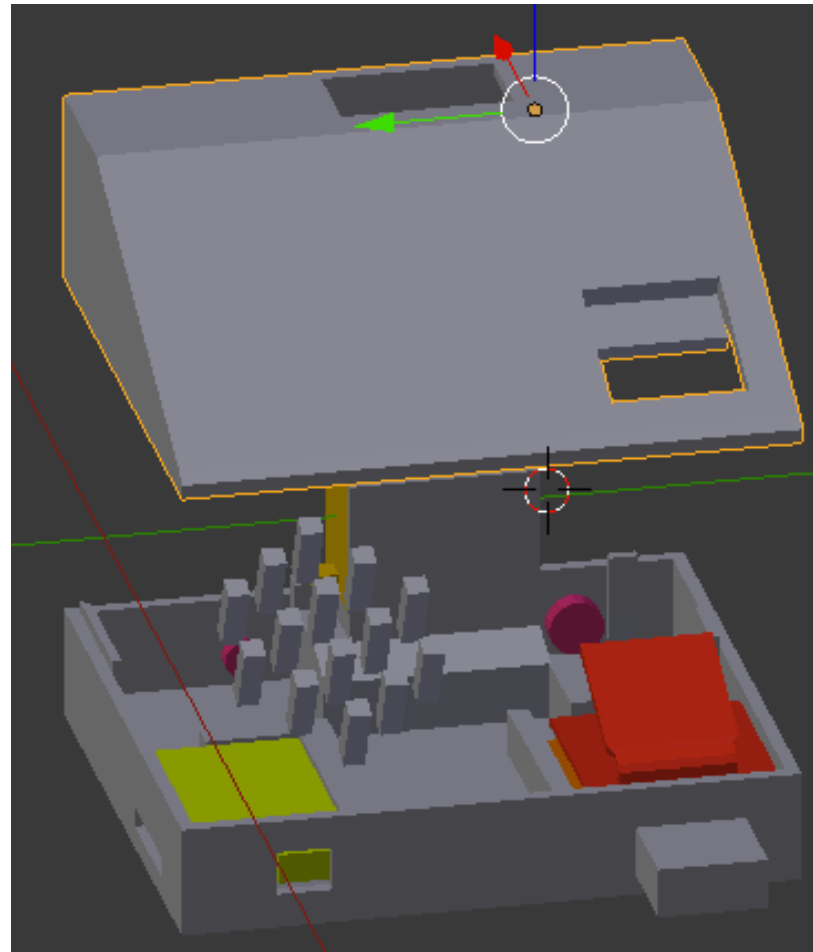
Servo for Dancing



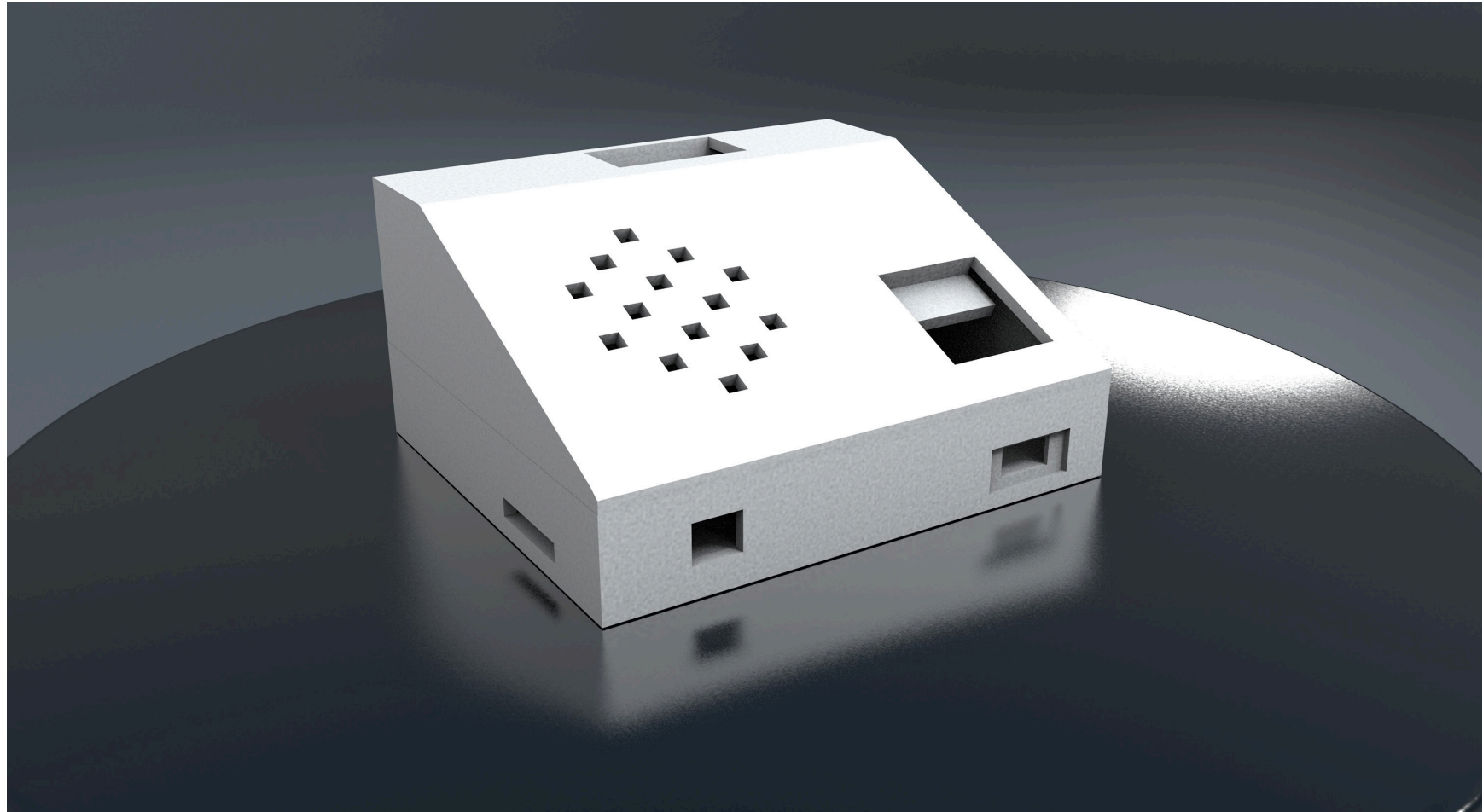
Closed Base Blender Image



Open Base Blender Image



Finished Base Rendered Image







Conclusion

- We did not achieve everything we set out to do, but we did achieve 95% of the main plan in very little time indeed, and we enjoyed it!

The message is clear

Lifelong learning is one of the keys to a fruitful life, and a fruitful life is one of the keys to happiness here on this Earth! 😊

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Thank-you for listening