

CONTENTS

04	FOREWORD
07	COURSE OVERVIEW
08	DESIGN THINKING: INVISIBLE BUT REAL
11	WHAT HAVE I GAINED BY STUDYING DESIGN AND TECHNOLOGY?
12	STUDENT PROFILES

Foreword

Dr. Sarah Pule



Year 2020 – 2021 marks the era of many global changes. The world has not fully recovered from the blow of COVID-19. While undoubtedly, many have suffered in different ways, this has also been a year of realisation. Humanity has realised how vulnerable it is. It has also acknowledged that it needs to be better prepared and that it should do so by design, and not by necessity.

This year presents the resurgence of a movement for Design across several countries and across multiple disciplines. These are exciting times for those interested in pursuing their studies and a career in Design because the very definition of design is being re-modelled and new employment opportunities are flourishing. The main take home message is that design is a mindset or a thinking process which can be transferable across disciplines and its' ultimate goal is to improve the quality of life, in whatever form, on this planet. Design needs to solve worthwhile problems and provide solutions that are multifaceted and well thought through from many perspectives. Designers need to be ready to embrace unknown and diverse bodies of knowledge. Design does not fit neatly under any other traditional discipline simply because its very nature necessitates tapping into several bodies of knowledge. Design gives people a voice through the nature of its process and therefore, successful design is usually impactful because it serves specific needs and wants in an efficient manner.

This showcase exhibits the efforts of the very first cohort of B.Sc. Technical Design and Technology graduates who have embraced and surpassed many known and unknown challenges through the course of their studies. In the spirit of the definition of modern design, the work presented here represents the broad range of skills acquired by the local pioneers in the field.

Well done and very best wishes to our graduates.



“

" ... we want to create a space for joint design work and creativity where architects, artists, students, system specialists, scientists, engineers and designers work together... The New European Bauhaus will be a driving force that takes an innovative and citizen-focused approach – and this will go beyond the borders of Europe."

Dr. Ursula von der Leyen
President of the European Commission

”



Course Overview

B.Sc (Hons) Technical Design and Technology

This programme is true to the nature of technology because although it relates significantly with areas such as mathematics, science, engineering, computing and art to name but a few, it also creates new combinations and boundaries of such technologically related domains. Within this course there are study-units that are intended to enable technological capability that is to 'do' technology as opposed to just learning about it. However, there are other study-units which are then targeted towards developing a reflective perspective on technology and its interaction with the human being, that is, how technology may be used or misused, learnt and taught.

The components making up this course can be categorized under the following headings:

1. Engineering Sciences and Visual Communication Conceptual Knowledge – Resistant Materials, Electrical and Electronic Systems and Control, and Graphics.

This category provides the main space and time for developing knowledge about manufacturing processes, processes that control a technological function, and processes that are highly dependent on competency in a visual language rather than only a verbal or symbolic one.

2. Technological Procedural Knowledge (laboratory/workshop practice).

This category provides the time and resources to support the engineering sciences mentioned in point 1. This category, together with the design category in point 3, provides the main channel for "doing technology".

3. Design Principles and Processes (conceptual and procedural knowledge).

This category provides the main space for developing designerly ways of knowing and doing.

It is one cross-curricular theme which will link most of the work done under categories mentioned in points 1 and 2.

4. Mathematics

This is another cross curricular theme which will link most of the work done under categories mentioned in points 1, 2 and 3.

5. Field Visits

This category provides the space and time for industrial experiences or participation in community experiences which involve technology education, for example a yearly Design and Technology Expo for schools, a robotics competition, a roaming technology popularization team etc.

6. Technology Studies

This provides the main space for reflective thought about technology and its possible social, political, cultural, environmental impact and how such issues may be permeated within a curriculum for school students, for the general public or other target audiences.

The content of the course is based on the National Minimum Curriculum subjects of Design and Technology, Graphical Communication and vocational Engineering Technology.

Design Thinking: Invisible but Real

by Dr. Lawrence Farrugia



The Greek philosopher Heraclitus (500 BC) stated that the only constant is change. His core teaching is still relevant to this day, as we live in an ever-changing world that is also becoming more complex. Our modern world is characterised by elements of Volatility, Uncertainty, Complexity and Ambiguity. Communities across the globe have consistently resorted to design thinking and technological innovation to solve the various problems afflicting them. Consequently, humanity has made breakthroughs in technological innovations in communication, transport, engineering, architecture and medicine.

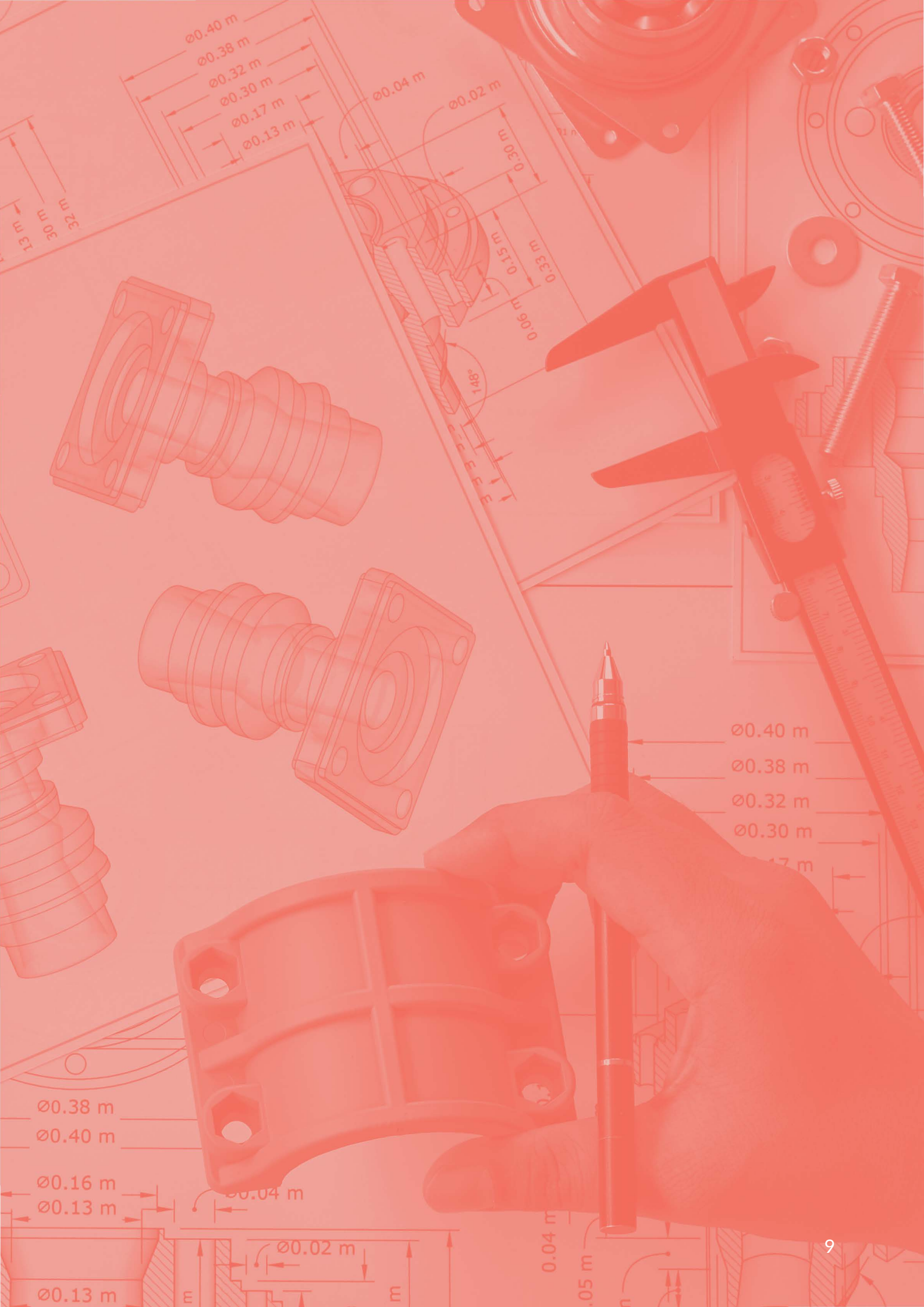
The products, services, and systems that facilitate our daily life and which we take for granted result from a purposeful design process that often takes place behind the scenes away from the end-user. Yet these technological innovations bear their existence solely on their inherent ability to solve problems, which consequently help us and facilitate our everyday life.

Design is invisible as it is a thinking process that guides the development of innovative products, services and systems. Design is everywhere; it is in the shape of the shoes you are wearing, the phone you are using to read this article and the utensils you use to cook dinner. In this sense, design is a process whereby a problem/challenge is transformed into a solution, such as a product or service. At the onset, any design process requires a thorough understanding of the problem. Consequently, the designer needs to be an excellent observer, listener and empathic towards the needs and wishes of the users.

Once a problem has been identified and understood, the designer engages in design exploration. In this sense, the designer assumes the role of an explorer who searches, creates and evaluates different ideas. The ultimate goal is to single out one idea that can be developed into a functional product or system.

One of the most challenging aspects of design is the need to be able to foresee the effect of decisions made during the design process (e.g. choice of material, number of components, product form) on issues related to ease of manufacturing, aesthetics, selling price, user experience, environmental impact etc. Consequently, the design process necessitates a systematic approach supported by methods and tools developed through scientific research. The design process also brings together disciplines such as science, mathematics, engineering, art and creativity. Technology such as 3D printing and augmented reality play a crucial role in the design process. It supports the designer in structuring the thought process, testing ideas, and identifying potential failures in the evolving design solution.

This publication presents final year design projects undertaken by undergraduate students reading for a Bachelor of Science (Honours) in Technical Design and Technology. These projects provide an example of the systematic design process briefly outlined in this article.







What have I gained by studying Technical Design and Technology?

“As one who has always been interested in the design process and its countless applications, this program of study greatly contributed to the improvement of my skills relating to all things design, particularly in the domain of technology.”

David John Attard

“The course helped me during the last 3 years to expand my knowledge on the works it entails when creating a product; ranging from product design, material selection, as well as different technology processes.”

Jihene Mallia

“This course has helped me sharpen my skills and see design from a whole new perspective by learning how to market, design, prototype and manufacture a product.”

Ryan Muscat

“By studying design and technology, I have gained both skills and knowledge that revolve around the designing and manufacturing industries.”

Sven Zammit

Student Profiles



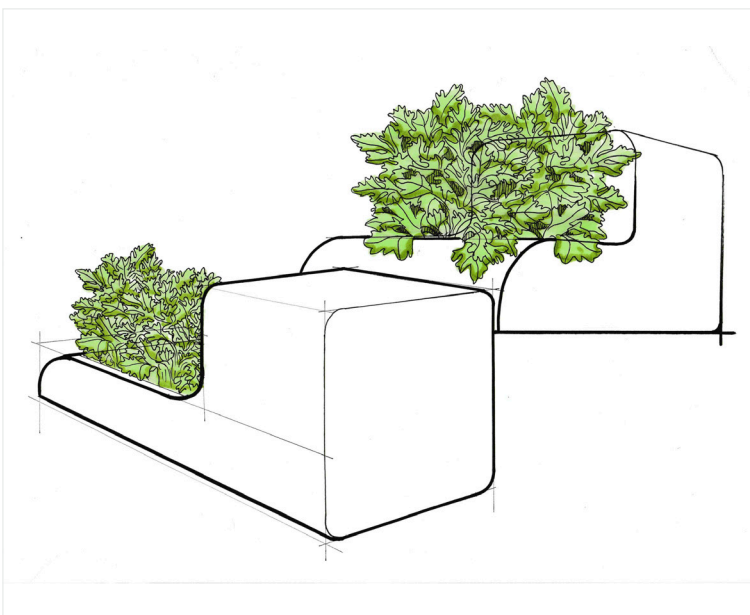
David John Attard

Final Year Project

The Design of a Modular Compact Irrigation System



Modular Compact Irrigation System - Render



Initial Sketch



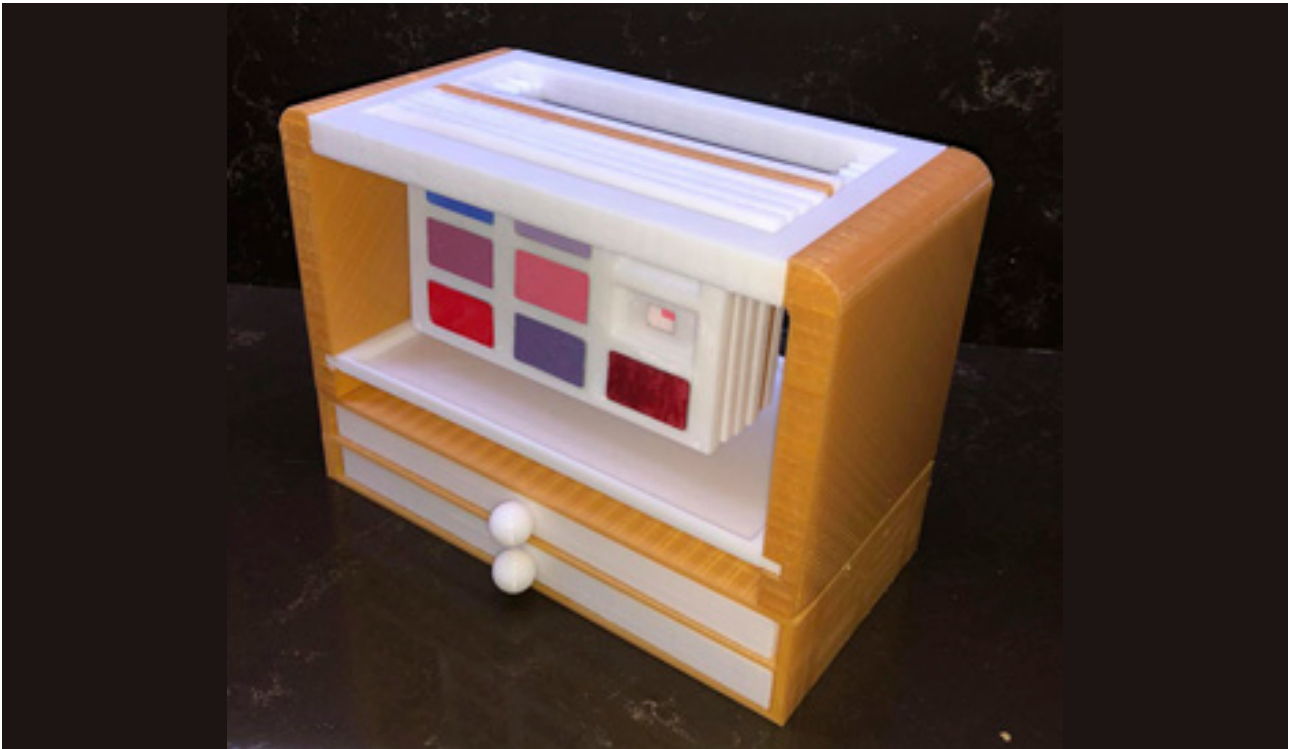
Stacked Prototype



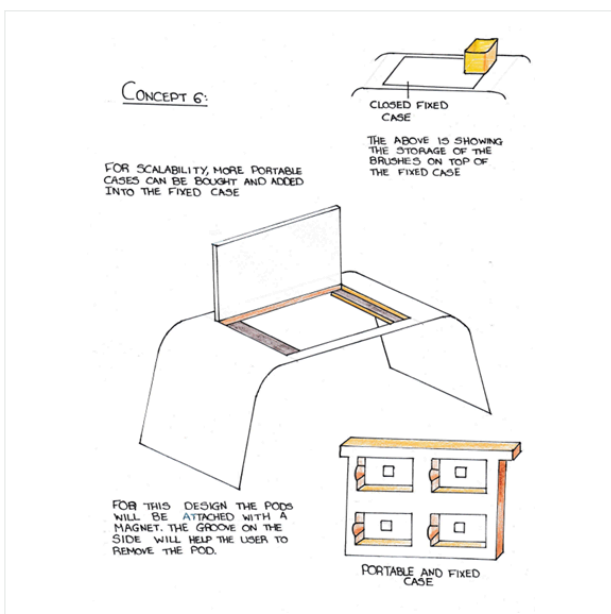
Jihene Mallia

Final Year Project

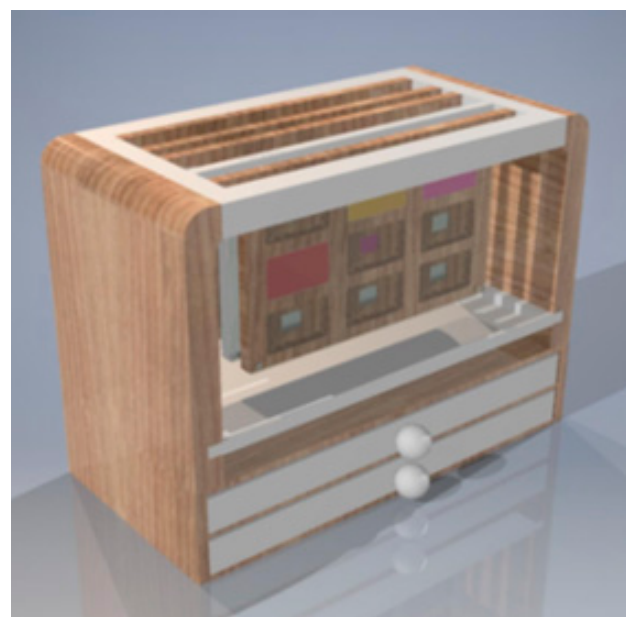
Design of an Eco-Friendly Make-Up Packaging



Eco-Friendly Make-Up Packaging - Final Prototype



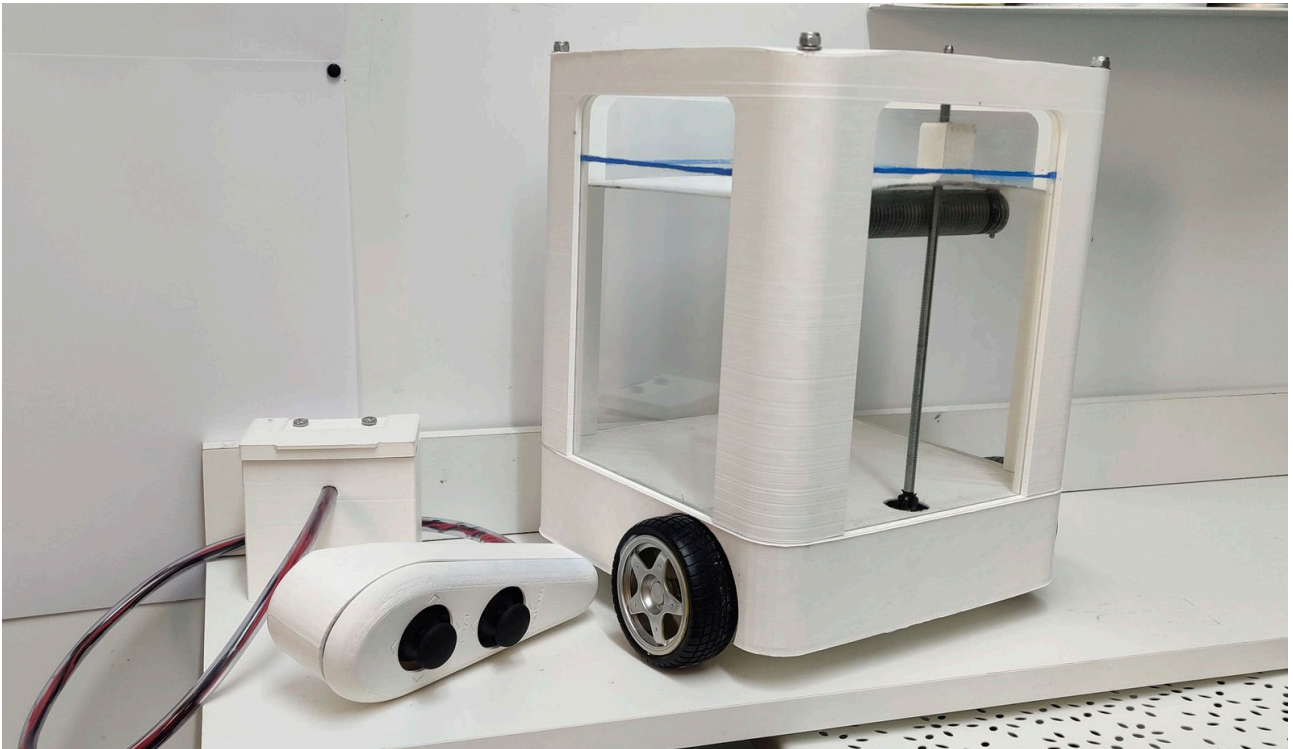
Sketch



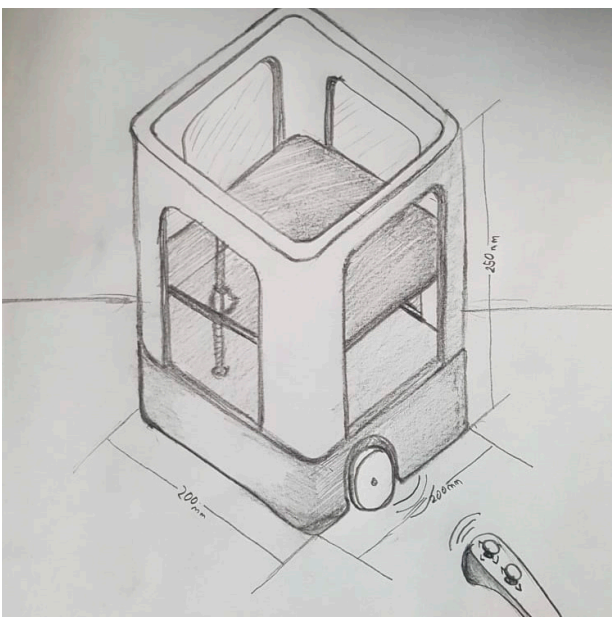
3D-Model

Ryan Muscat

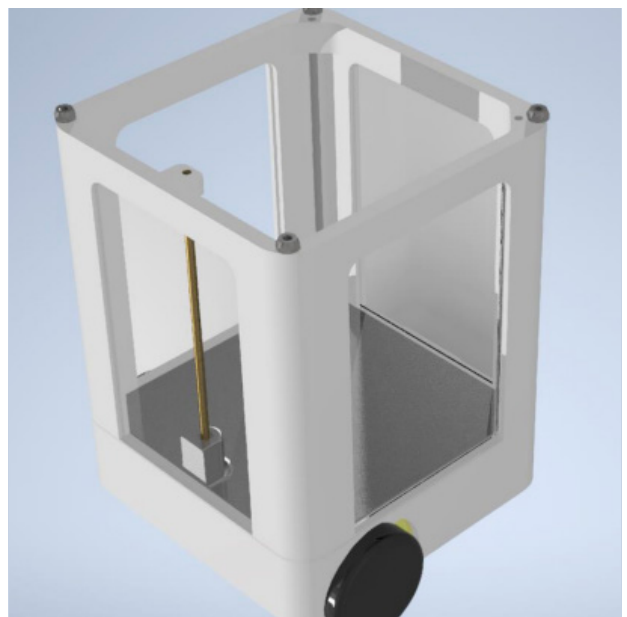
Final Year Project
Supermarket Assistant Robot



Supermarket Assistant Robot - Working Prototype



Sketch



3D Render



Sven Zammit

Final Year Project
Accessibility for the Elderly



Accessibility for the Elderly: Application in Furniture



Working Prototype

