Marlon Gwira

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Education

Middlesex University	**Degree:** BEng Mechatronics Engineer.
2015 - 2018	**Key modules:** Mechatronics, Embedded Systems, Mobile Robots & Manipulators.
I.T.I.S A. ROSSI	**Degree:** Diploma of Mechatronics Technician.
2008 – 2014	**Key Modules:** Product design, Control Systems, Industrial manufacturing methods.

Projects

Moley Robotics Subsystem 2019-2020	Prototyped, oversaw manufacture, and integrated of subsystems in the Robotics Kitchen. Responsible for concept to manufacture of internal components of the refrigerator rig as well as programming, testing, and prototyping a variety of projects within the company.
YouTube link	Demo: First Kitchen iteration
Mobile Robot 2018	Designed, built, and programmed a mobile robot with web UI. Used ROS to programme the robot with the help of packages like GMAPPING SLAM and ROSBRIDGE.
YouTube link	Demo: Mobile Robot (final year project)
ABB Programming 2018	Programmed an industrial manipulator to write my initials by manual jogging, draw an image logo by offline programming in Robot Studio and implemented an algorithm to draw result of basic mathematical operations.
YouTube Link	Demo: ABB programming
PLC Programming 2018	Programmed SIEMENS PLC to execute a given sequence, having the UI displayed in an HMI.
YouTube link	Demo: PLC Programming

Work Experience

Hardware Engineer at Moley Robotics **Jun 2019 – Sep 2020**

- Assembly of automated or semi-automated systems.
- Design of mechanical systems (with Solidworks and Fusion360).
- Testing of robotic subsystems.
- Dealing with manufacturing companies.

Software Developer at RBS **Sep 2018 – Jun 2019**

- Part of the backend team that provide with software features for internal applications.
- Languages used: Java, C#, Python, JavaScript, HTML5, CSS.
- IDE: Eclipse, Visual studio, PyCharm and Visual Studio Code.
- Actively worked with AWS services to provide solutions.
- Working in an agile environment implementing CICD.

Skills

- Design experience: AutoCAD, Solidworks, Fusion 360, 3D printing (Cura, Simplified3D, Prusa) and rapid prototyping.
- Programming experience: Python, Java, C#, HTML5, CSS3, JavaScript, Rapid and Arduino.
- Robot experience: ABB, UR3(e), UR5, UR10, SHUNK robotic hand and Turtlebot.

Other Info

- Online Portfolio: https://marlong21.github.io/
- Languages: English, Italian, Twi.

Most Recent Job Portfolio

The following designs are some of the projects I worked on during my stay at Moley Robotics.

Refrigerator Rig

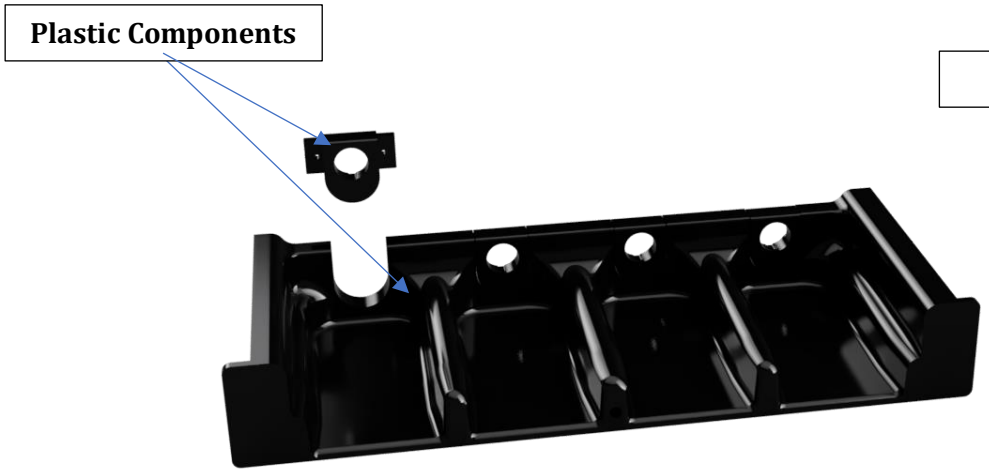
Project Description

The aim of this project was to design a refrigeration system that would be able to store ingredients as well as have the capability to interact with the robot to aid in providing the ingredients requested by the recipe.

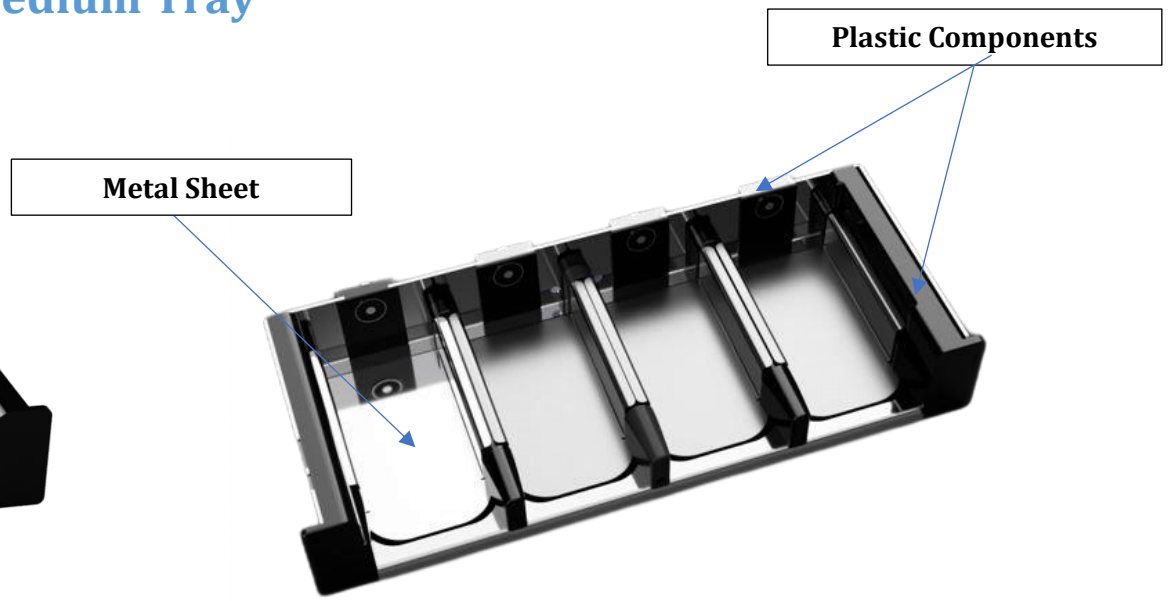
My role

My role in this project was to oversee its lifecycle as well as design from concept to manufacturing of the automated moving components. Programming of the automated components was also part of my role, liaising with the software team in testing and integration within the Robotic Kitchen.
Dealing with manufactures to ensure that production deadlines were met was also part of my day-to-day role.

Medium Tray



Medium tray



Medium weight sensing tray concept

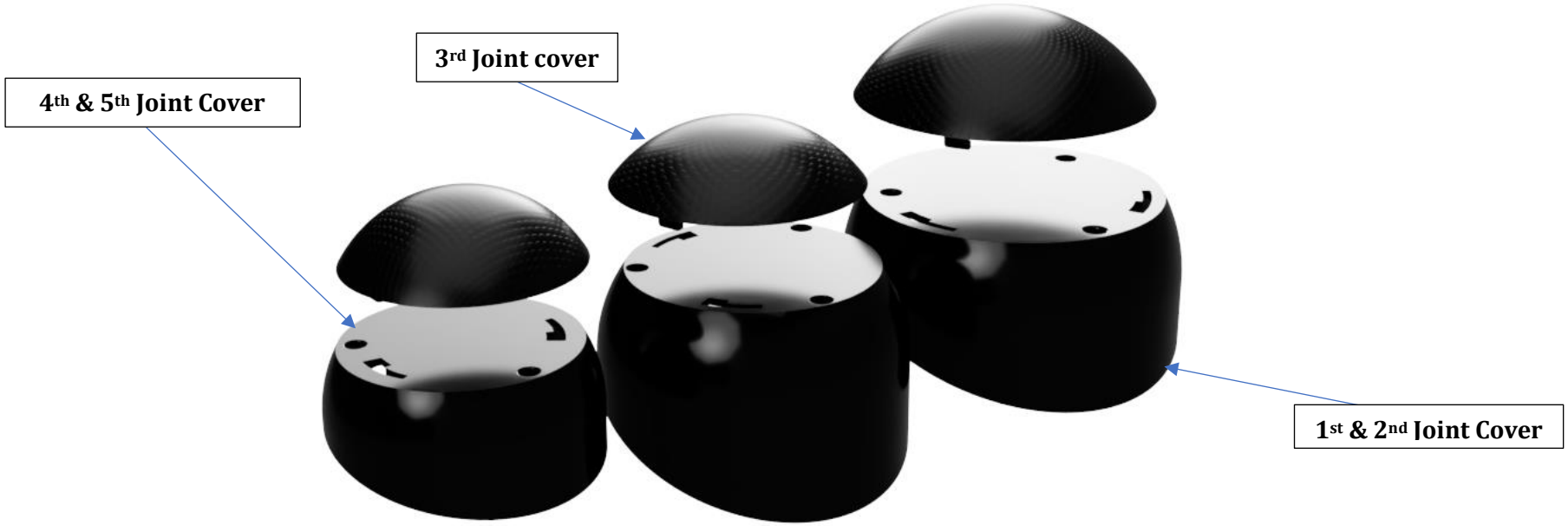
Project Description

Designing of trays that will house the containers stored in the fridge units. The main functionality of the trays was to help in housing the containers (medium, large, chicken and long size range) by guiding them to their homing location.

My role

My role in this project was to oversee its lifecycle as well as design from concept to manufacturing. Programming of the motion profile driven by a leadscrew mechanism.

UR3 Robot Joint Covers



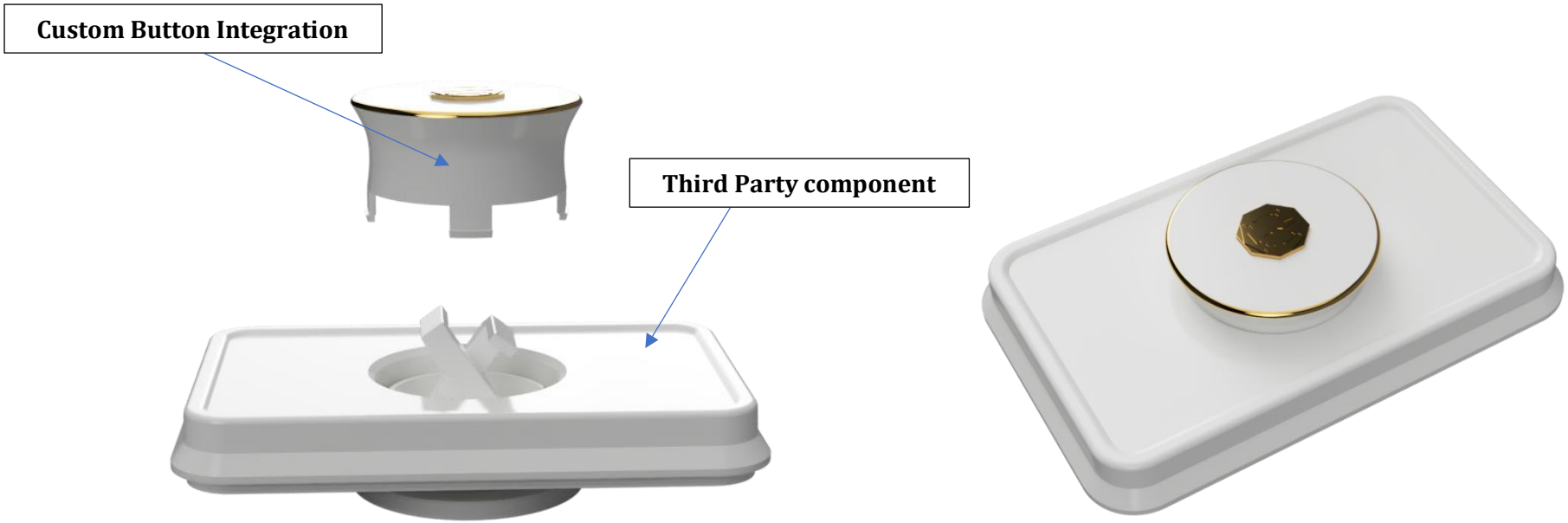
Project Description

Integration of covers to enhance and keep design theme consistency within the Robotic Kitchen.

My role

My role in this project was to oversee its lifecycle as well as making sure that the right tolerances were met, to ensure an easy integration as well as making sure it would not affect the robot arm's mobility.

Lid Button Integration



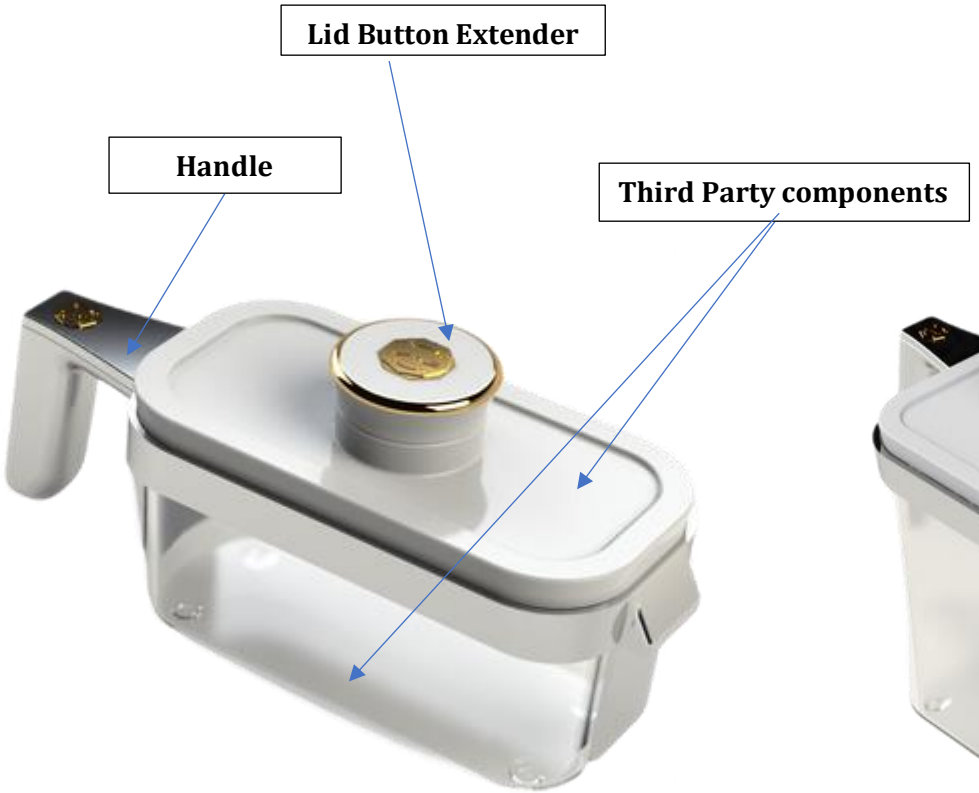
Project Description

Due to limited resources integration of redesigned parts was key in the product testing and development. In this project, the button of the lid had to be redesigned in other to showcase the company's trademark while keeping the actuation mechanism the same.

My role

My role in this project was to oversee its lifecycle as well as design from concept to manufacturing. Liaising with the manufacturing companies.

Ingredients Containers



Medium Container (Prototype)

Chicken Container (Prototype)

Long Container (Prototype)

Project Description

The aim of this project was to integrate handles and actuating buttons that would allow the robot to use the containers. The handles had to allow easy pick and place motion trajectory of the robot while the buttons had to be high enough to allow the fingers of the robot hand to remove the lid from the container.

My role

My role was to design, prototype and test the integration of these components as well as dealing with manufacturers.