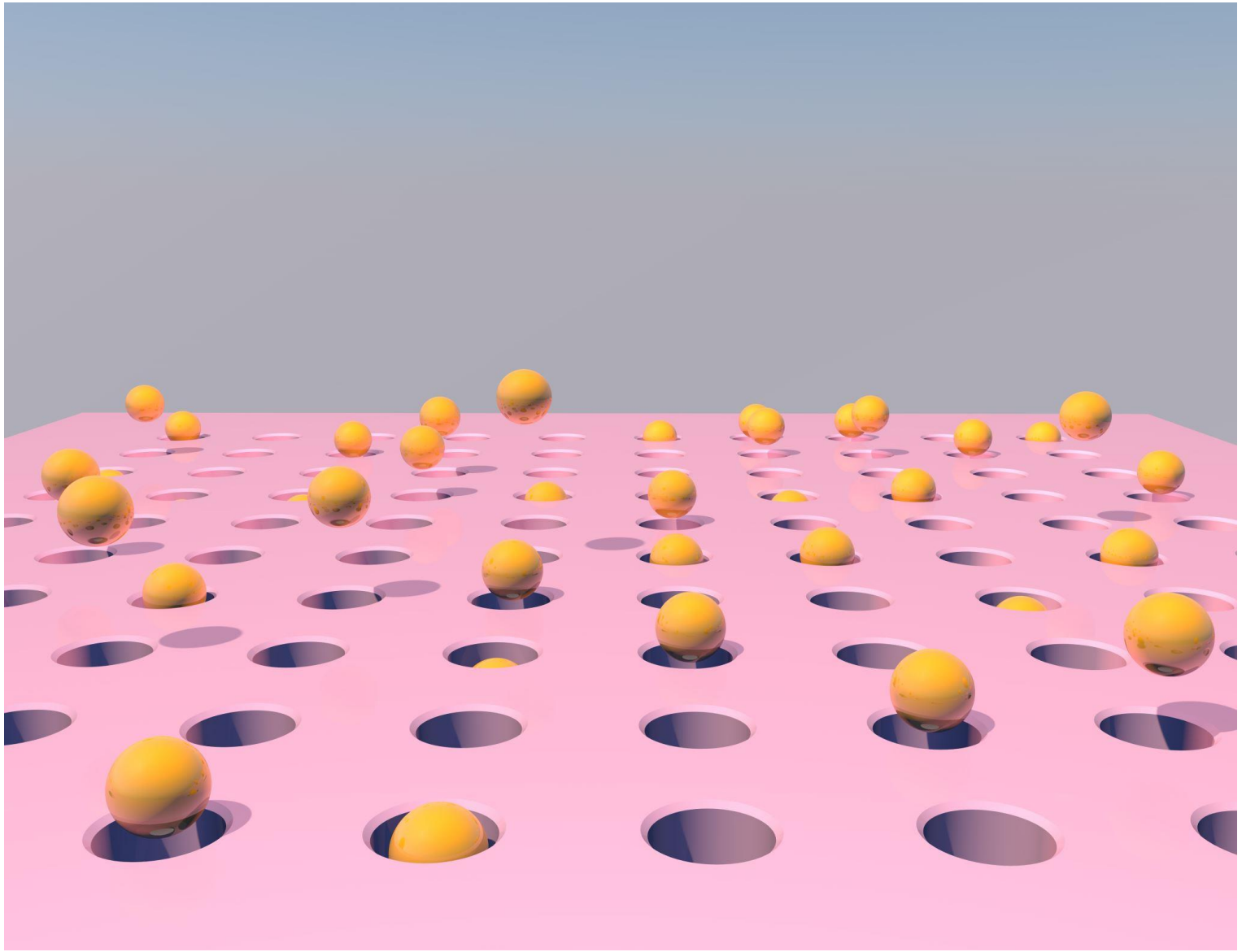
FYP 2023-2024 SHARING:

[LY02] FPGA-CONTROLLED SINGLE REFRESHABLE BRAILLE CHARACTER

Supervisor: Prof. Levent YOBAS

Dennis Wong Guan Ming



INTRODUCTION

Problems Statement: Visually impaired have limited access to read and write tools.

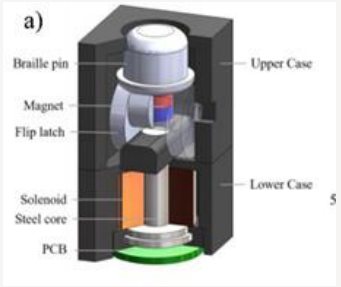
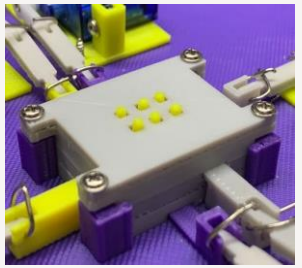
Design Considerations:

- Braille displays should be affordable and portable.
- Similar functions to existing braille displays

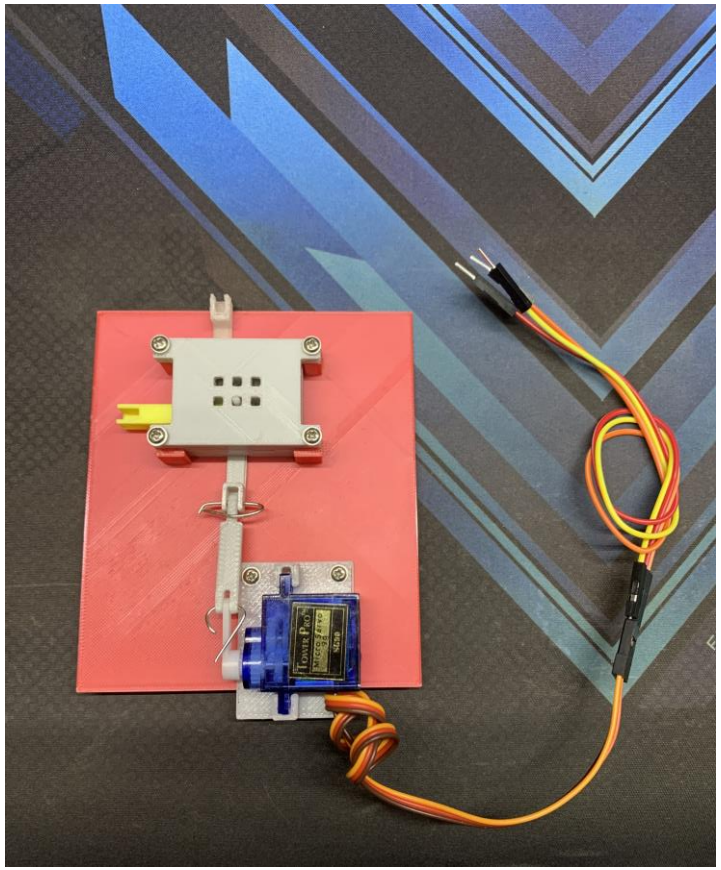
Goal: Engineer an affordable, low-latency Braille Display for visually impaired.

Orbit Reader 20: Cost $3000 ~ $4000 HKD

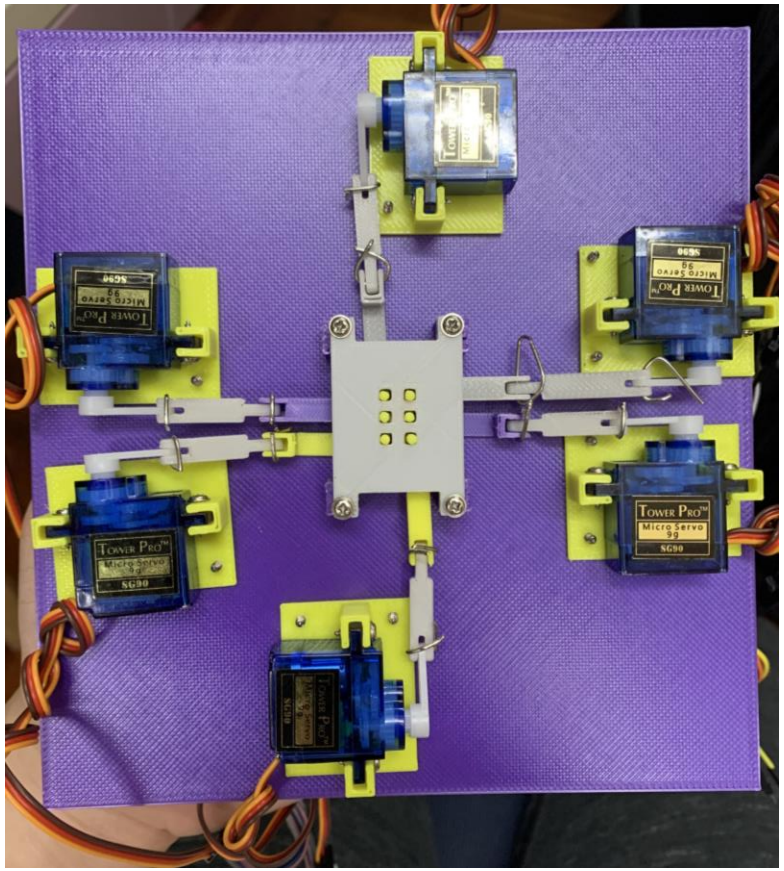
FYP CHALLENGES AND ADJUSTMENTS

Revision No.	Idea	Challenges with this idea	Picture
1	To use solenoids to drive the "up or down" motion of the braille cell	Takes up vertical space, lacks novelty.	
2	To use an electro-tactile "pad" to stimulate the finger's senses	Difficult to implement and expensive cost of materials contradicts the objectives of the project.	
3.	Horizontally oriented sliders that slide "in and out" drive the "up or down" motion of the braille cell	All parts had to be 3D printed and sanded down which presents challenges in manpower.	

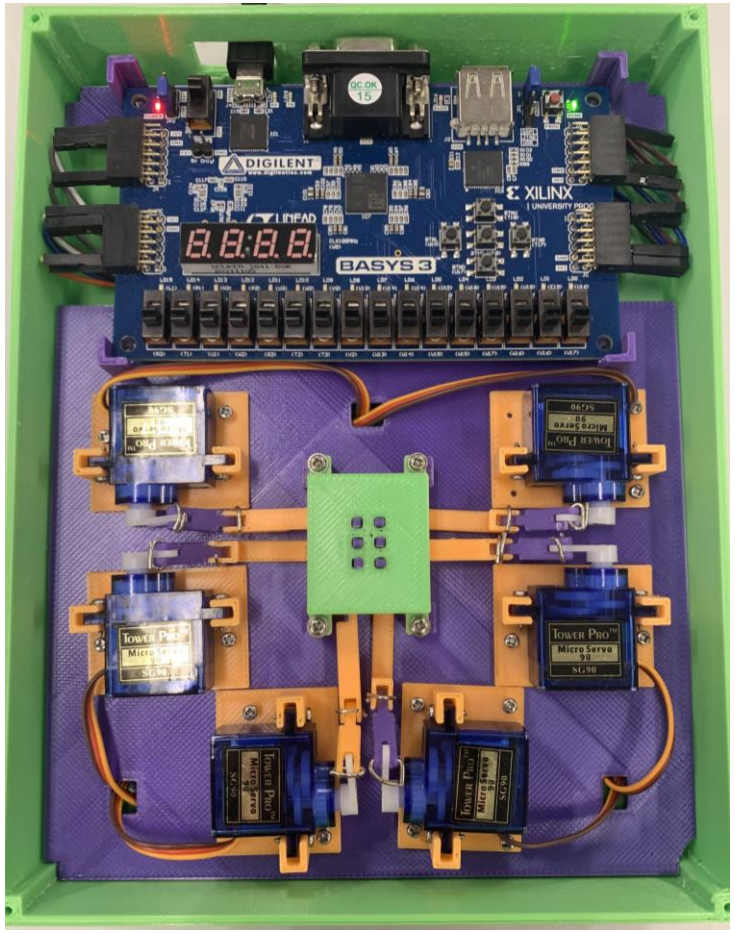
PROTOTYPE EVOLUTION



Prototype 1 – 7/1/2023



Prototype 2 – 18/1/2023



Prototype 3 – 19/3/2023