

DYSIDER

A PROJECT REPORT

Submitted by

SUBHADHARSHINI K 2018115113

VISHALINI V 2018115132

submitted to the Faculty of

INFORMATION AND COMMUNICATION ENGINEERING

in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY



DEPARTMENT OF INFORMATION SCIENCE AND TECHNOLOGY

COLLEGE OF ENGINEERING, GUINDY

ANNA UNIVERSITY

CHENNAI 600 025

MAY 2021

ANNA UNIVERSITY
CHENNAI - 600 025
BONA FIDE CERTIFICATE

Certified that this project report titled DYSIDER (Dyslexia Aider for Kids) is the bona fide work of SUBHADHARSHINI K (2018115113) and VISHALINI V (201815132). They carried out project work under my supervision. Certified further that to the best of my knowledge and belief, the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or an award was conferred on an earlier occasion on this or any other candidate.

PLACE:CEG

DATE:04.05.2021

Dr.BAMA SRINIVASAN

ASSISTANT PROFESSOR

DEPARTMENT OF IST, CEG

ANNA UNIVERSITY

CHENNAI 600025

COUNTERSIGNED

Dr. SASWATI MUKHERJEE

HEAD OF THE DEPARTMENT

DEPARTMENT OF INFORMATION SCIENCE AND TECHNOLOGY

COLLEGE OF ENGINEERING, GUINDY

ANNA UNIVERSITY

CHENNAI 600025

ABSTRACT

Dyslexia is a specific language disorder of neurobiological origin. The condition causes reading, writing and speaking issues amongst growing children. It is characterized by poor word recognition, spelling and decoding abilities. This condition prevails despite having higher cognitive abilities and receiving effective classroom experience.

The condition is commonly seen in kids. Adults can also have this learning disorder. Some people are diagnosed early in life. Others don't realize they have dyslexia until they get older. About 5 to 10 percent of the world's population has some symptoms of dyslexia, such as slow reading, trouble spelling, or mixing up words.

Kids with dyslexia often have normal vision and are just as smart as their peers. But they struggle more in school because it takes them longer to read. Trouble processing words can also make it hard to spell, write, and speak clearly. In spite of being smart and hardworking, they face trouble connecting the letters they see to the sounds those letters make.

DYSIDER is a Dyslexia Aider application developed specially for growing children battling this disorder. With the help of appealing visual and textual aids, this application will aim to improve their word recognition, vocabulary, spelling and decoding abilities.

ACKNOWLEDGEMENT

We express our deep sense of gratitude to our respected guides, Dr.S. Bama, Ms. P. Anishiya and Mr. H. Riasudheen for their valuable help and guidance. We are immensely thankful to them for the encouragement they have given us in this project.

We are also thankful to all other faculty and staff members of our department for their kind co-operation and help.

Lastly, we would like to express our gratitude and appreciation towards our classmates and our parents for providing us the moral support and encouragement.

K.SUBHADHARSHINI - 2018115113

V.VISHALINI - 2018115132

TABLE OF CONTENTS

	ABSTRACT	iii
	LIST OF FIGURES	vii
	LIST OF SYMBOLS AND ABBREVIATIONS	viii
1	INTRODUCTION	1
1.1	PURPOSE	1
1.2	MODULES	1
1.2.1	Phonics	1
1.2.2	Vowels	2
1.2.3	Speech	2
1.2.4	Word Formation	2
1.2.5	Colours	2
1.3	PLATFORM AND TOOLS	2
2	EXISTING WORK	4
2.1	METHODS OF CITATION	4
2.1.1	Citation of Websites	4
2.1.2	Citation of Articles	4
2.2	LIMITATIONS OF EXISTING ONES	4
2.3	ADVANTAGES OVER EXISTING ONES	5
3	DESIGN	6
3.1	MODULES	6
3.2	SUB-MODULES	6
3.3	WORKFLOW	6
4	IMPLEMENTATION OF WORK WITH SCREENSHOTS	8
4.1	PLATFORM AND TOOLS USED	8
4.1.1	Platform	8
4.1.2	Programming Languages	8
4.2	SCREENSHOTS	9
5	CONCLUSION	13
5.1	FUTURE ENHANCEMENTS	13

APPENDIX	14
A TOPIC 1	14
A.1 CSS	14
A.2 HTML	14
A.3 VANILLA JS	14
A.4 VS CODE	14
REFERENCES	15

LIST OF FIGURES

LIST OF SYMBOLS AND ABBREVIATIONS

DYSIDER	Dyslexia Aider
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheets
JS	Java Script
VS Code	Visual Studio Code

CHAPTER 1

INTRODUCTION

1.1 PURPOSE

The goal of this project is to give engaging support for dyslexic children all over the world. The disorder can be corrected with strategies geared to the innate strengths shared by them, as individuals. With the help of appealing visual and textual aids, this application will help them improve their word recognition, vocabulary, spelling and decoding abilities. This will also kindle their creative potential, and will help them learn how to harness and use their individual strengths to the fullest.

1.2 MODULES

The application contains 5 different modules created to address the common issues faced by dyslexic children. The modules are designed, such that each module is a level higher than the previous module. This makes it a smooth learning curve for the dyslexic kids.

The modules are Phonics, Vowels, Speech, Word Formation and Colours. Each of these modules have sub-modules, which will be discussed later.

1.2.1 Phonics

This module aims to teach the phonics of the English Alphabet with the help of visual cards and sounds. This module has 2 sub-modules, in which

one is a Phonic Wall, where the kids can listen and learn, and the other is a testing module which tests what they have learnt from the Phonic Wall.

1.2.2 Vowels

Vowels are very important to form words and to pronounce them. But, with practice, they are very easy to learn and master. This module teaches kids to learn and use vowels, through a fun and interactive game.

1.2.3 Speech

This module aims to teach kids pronounce randomly chosen words of varying lengths correctly, using the knowledge they have gained from the previous modules. They must spell the words out loud, and can listen and learn the words' correct pronunciation using audio-visual aids.

1.2.4 Word Formation

This module encourages kids to form words from a given set of letters. Kids are expected to use the knowledge gained from previous modules to form valid words. This module is designed in a game-fashion with a timer, which also urges the kids to think faster.

1.2.5 Colours

This module tests colour identifying abilities of kids, and also teaches them the RGB colour model through a fun game. It has 3 sub-modules, one of which is 3D colour cube that tests how fast kids can identify colours. The other 2 modules teaches and tests the kids on the RGB colour model.

1.3 PLATFORM AND TOOLS

Dysider is a purely Web-based application. The platform used for both the front-end and back-end development of the application is Visual Studio Code.

The following languages were used to develop the application:

- HTML
- CSS
- Vanilla JavaScript

CHAPTER 2

EXISTING WORK

We have gone through various research papers, journals, websites and other media contents to find out what makes these dyslexic kids different from normal kids and some efficient methods in e-learning which will help those kids to improve their vocabulary in English language . The citation of those are given in this chapter as references.

We have also discussed the limitations of the existing work and how our idea is advantageous over their work.

2.1 METHODS OF CITATION

We have used the following methods of citation.

2.1.1 Citation of Websites

We followed many websites to get various information regarding efficient educational games [1] and visual aids for dyslexic kids. Their links are given in the reference section.

2.1.2 Citation of Articles

We have also gone through various articles published regarding interactive learning media for dyslexic kids ,User Interface Guidelines for Dyslexic Game-Based Learning. These are referenced in the reference section.

2.2 LIMITATIONS OF EXISTING ONES

The existing android apps , web apps , websites all of them address only one of the problems faced by them. Like they address their problem in recognising phonics / shapes / words/ reading. As far as we searched , we couldn't find an app/website that provides some aids for their problem in recognising colours.

2.3 ADVANTAGES OVER EXISTING ONES

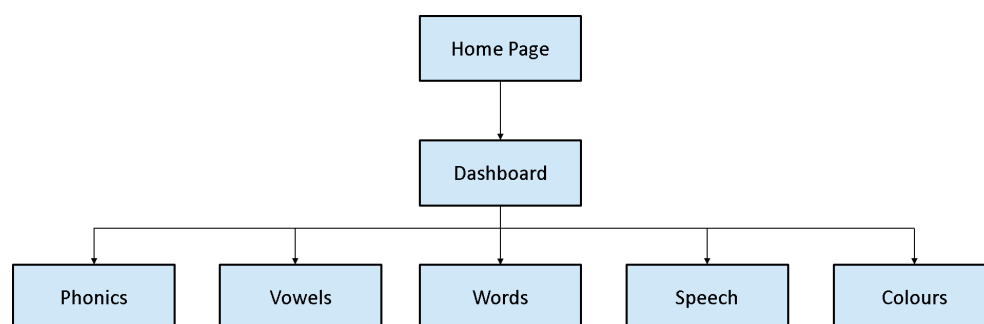
We have come up with a web app in which we have come up with 5 modules which addresses the basic problems faced by dyslexic kids. We have made it in a gradual way. Like first starting with phonics , then specifically for vowels , then spelling, then word formation and then colours. We have a separate module to aid them in recognising colours. We have implemented some games to make it more engaging and also we have made it with appealing visual aids and sounds.

CHAPTER 3

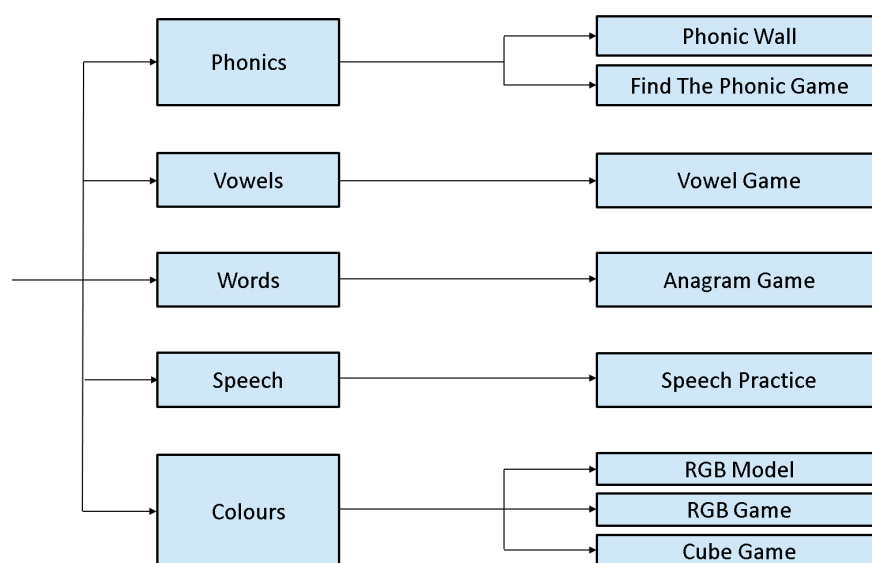
DESIGN

The application contains 5 different modules created to address the common issues faced by dyslexic children. Each of these modules have sub-modules, designed to create a smooth learning curve for the children.

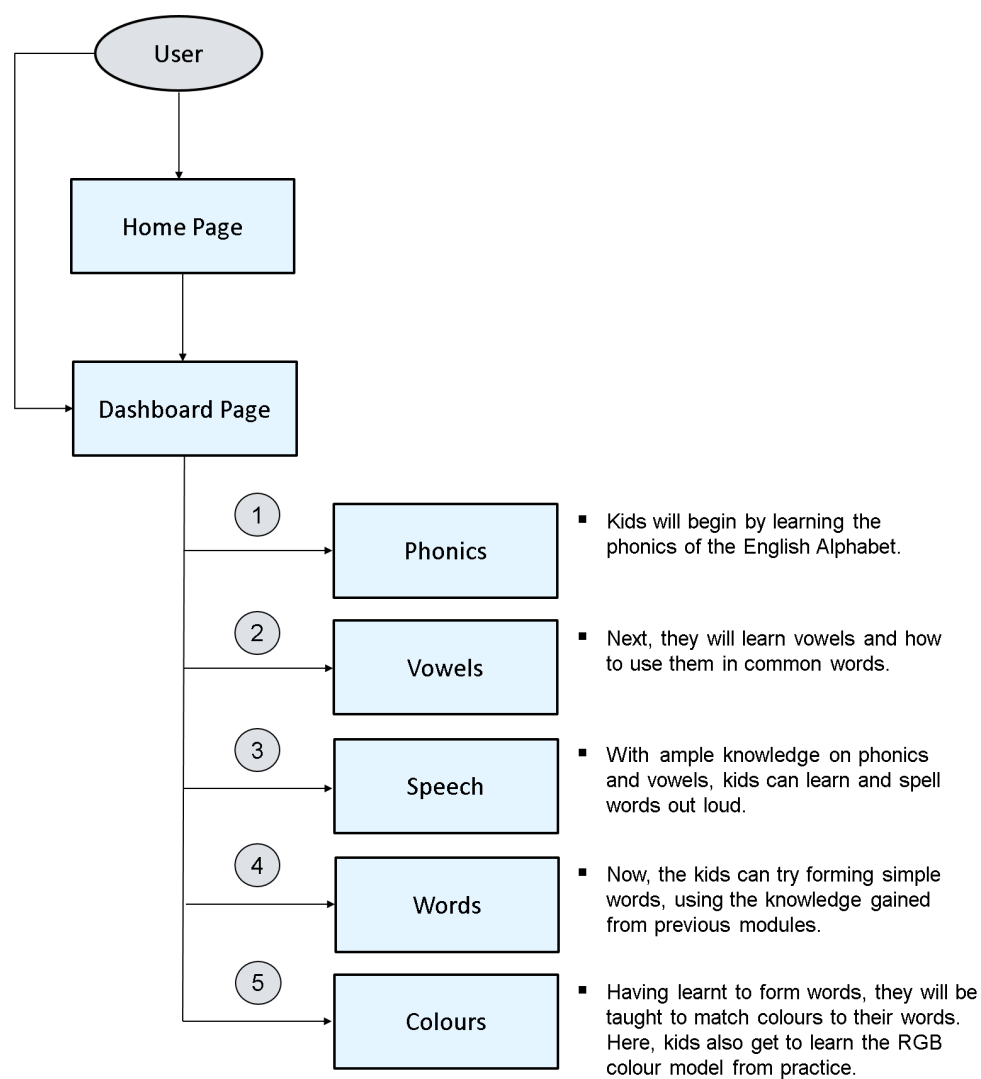
3.1 MODULES



3.2 SUB-MODULES



3.3 WORKFLOW



CHAPTER 4

IMPLEMENTATION OF WORK WITH SCREENSHOTS

4.1 PLATFORM AND TOOLS USED

4.1.1 Platform

The platform used for both the front-end and back-end development of the application is **Visual Studio Code**. VSCode provides basic support for HTML programming out of the box. There is syntax highlighting, smart completions with IntelliSense, and customizable formatting. VS Code also includes great Emmet support.

4.1.2 Programming Languages

Dysider is completely web-based application. The following programming languages, that are popularly used in web development, were used to create the front-end and back-end of this application.

- **HTML** is the standard markup language for documents designed to be displayed and viewed on the browser. It helps in creating the structure of a web page. It is completely platform-independent, and is popularly used in front-end development of web development projects.

- **CSS** is a method-sheet language that allows web developers to regulate various style elements and functionalities, like layout, color, fonts, and therefore the formatting and display of HTML documents. HTML and CSS are one of the most popularly used combo for front-end development of web-development projects.
- **VanillaJS** is used to refer to the pure JavaScript without any type of additional library. It is one of the lightest weight frameworks ever. It is very basic and straightforward to learn as well as to use, and can be used to create significant and influential applications.

VS Code also provides many extensions like Prettier, Path Intellisense, Chrome Debugger, Live Server, etc, to support development of websites using HTML, CSS and JavaScript.

4.2 SCREENSHOTS

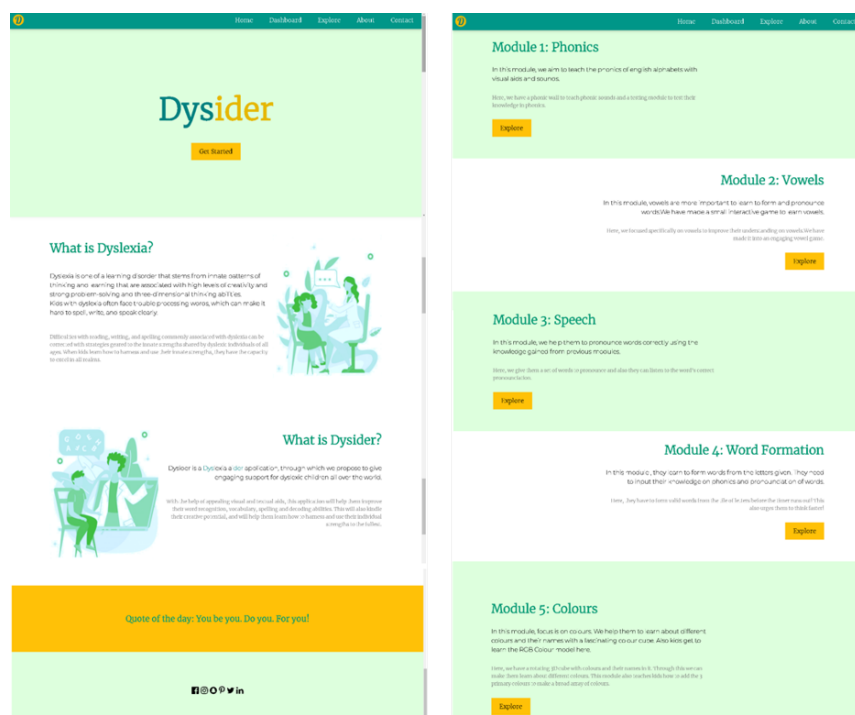


Fig.1: Home Page (Left) and Dashboard Page (Right)

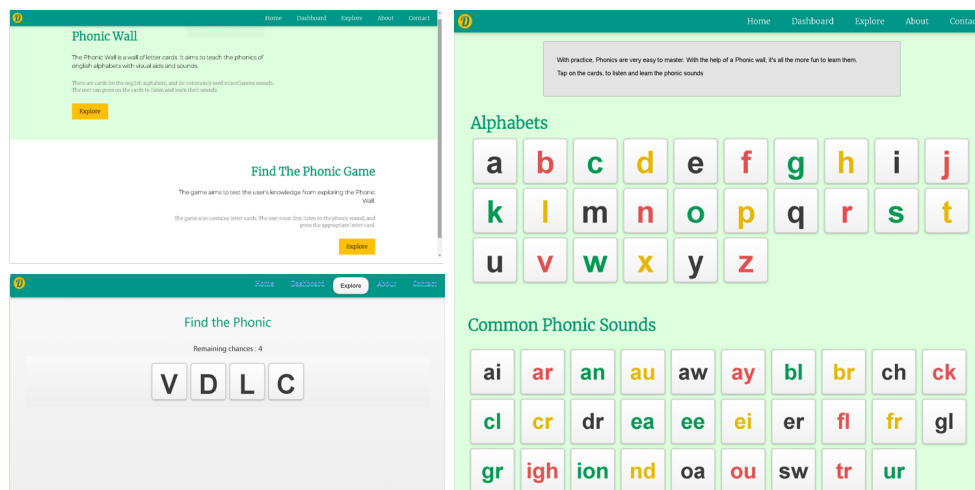


Fig.2: Phonics Page (Top Left), Phonic Wall Page (Right) and Find the Phonic Game (Bottom Left)

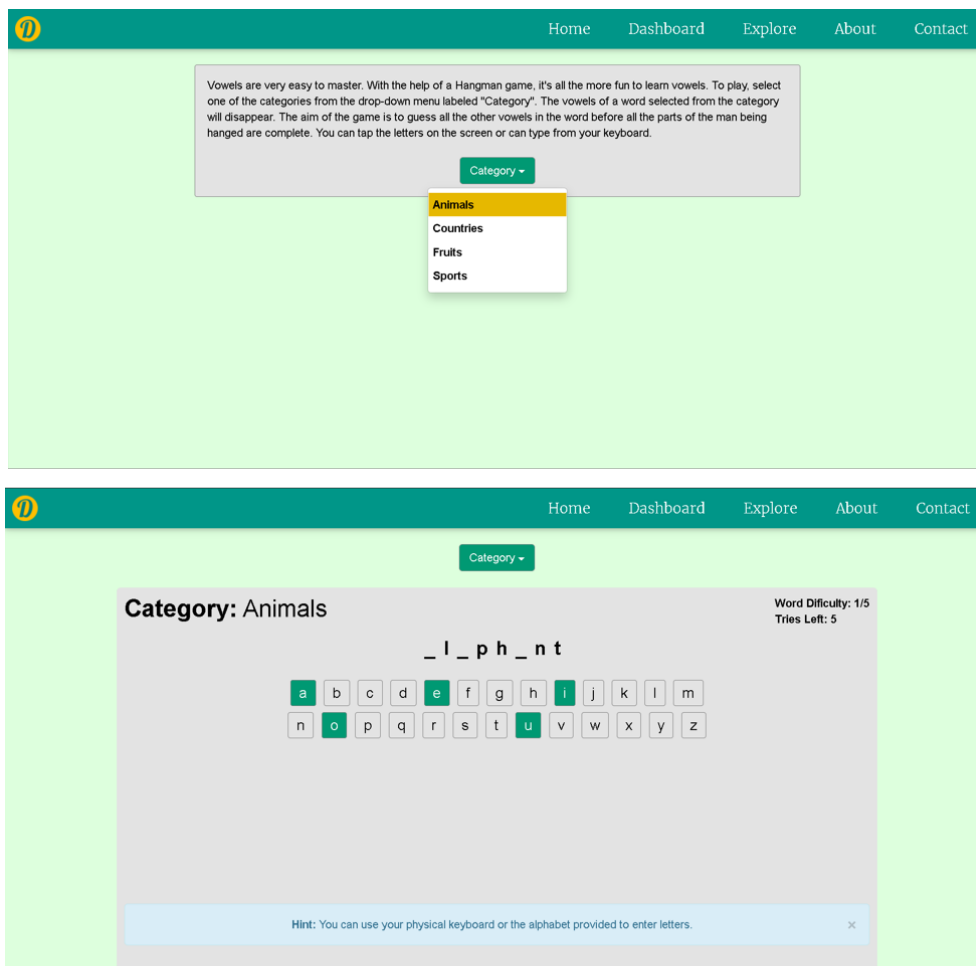


Fig.3: Vowel Game Instructions (Top), Game (Bottom).

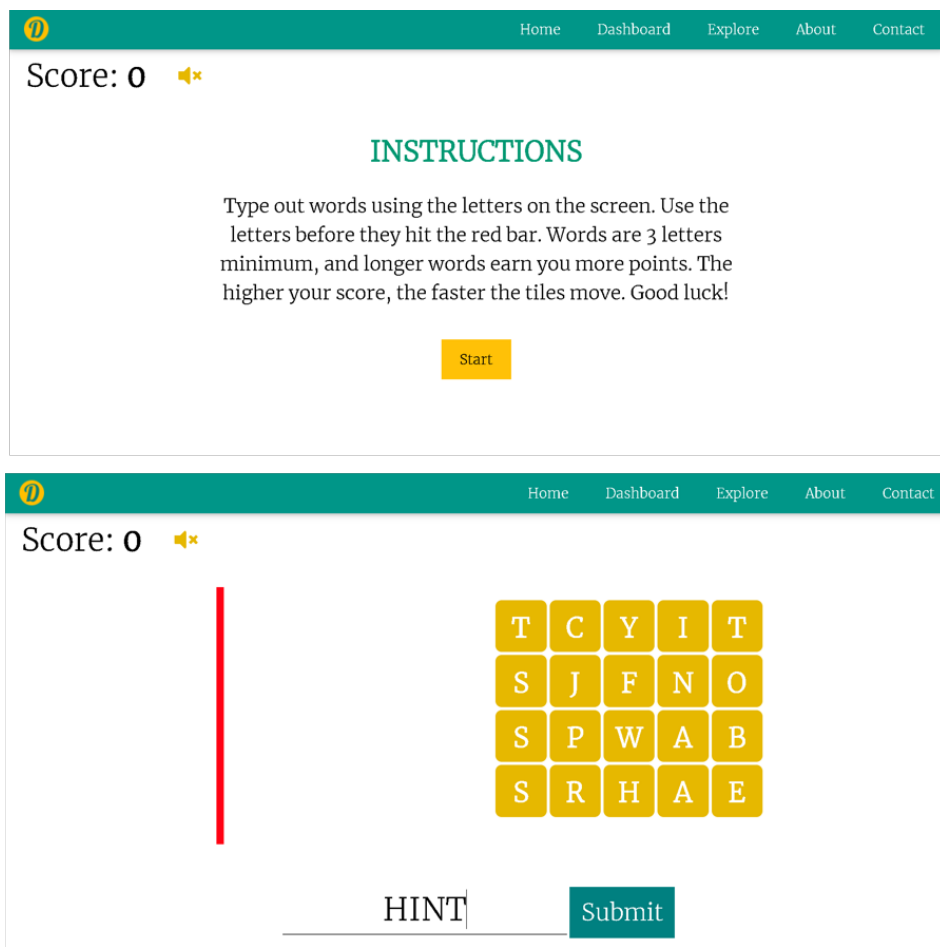


Fig.4: Word Formation Instructions (Top) , Game (Bottom)

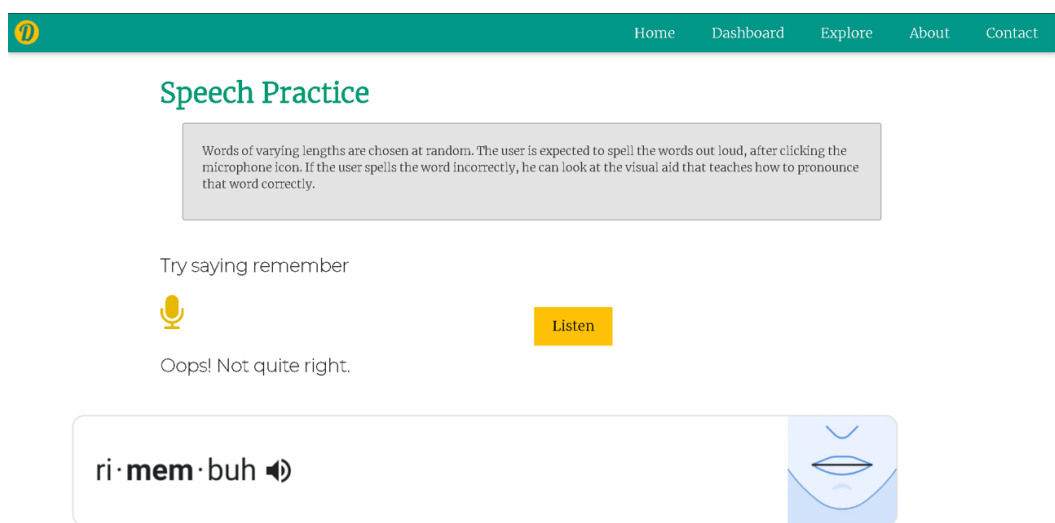


Fig.5: Speech Practice Module Page

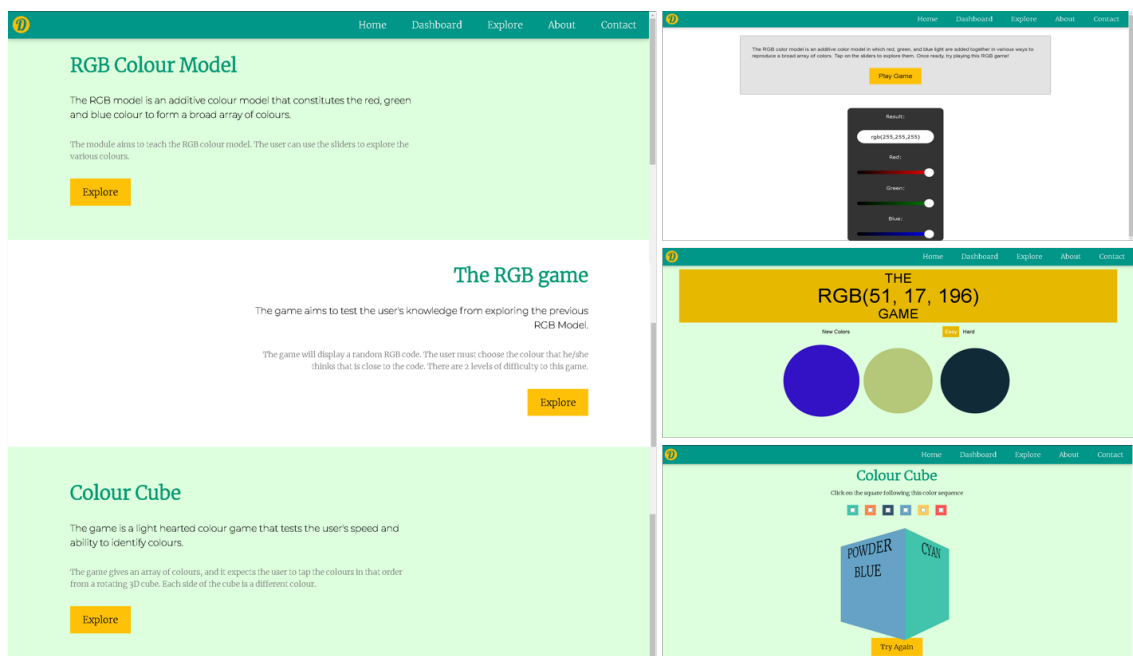


Fig.6: Colours Page (Left), RGB Model (Right Top), RGB Game (Right Middle), Colour Cube (Right Bottom)

CHAPTER 5

CONCLUSION

The goal behind Dysider was to truly help dyslexic children all over the world, to overcome their hurdles, and to increase their learning curve. Since, sometimes plain teaching methods can get boring even for normal children, it is no different for dyslexic children. So with Dysider, we wanted to bring in a fun twist to learning, with the help of interesting and engaging games and visual aids.

From the amount of hardwork that was put into this project, we were certain that it will come out successfully. Our intension is to give engaging support to dyslexic kids, and to correct this disorder at an early stage. The core modules in this project are designed in a way to gear the innate strengths share by them, as individuals.

5.1 FUTURE ENHANCEMENTS

Dysider is a web application. We can further extend it to support small-screen viewing, like a mobile application. We can integrate a blog into the application, where ex-learners who benefitted from it can post their thoughts and views. We can also take suggestions from parents who were/weren't satisfied with the application, through this blog.

APPENDIX A

TOPIC 1

A.1 CSS

Cascading Style Sheets is a method-sheet language that allows web developers to regulate various style elements and functionalities, for the formatting and display of HTML documents.

A.2 HTML

Hyper Text Markup Language is a completely platform-independent, and is popularly used in front-end development of web development projects.

A.3 VANILLA JS

Vanilla JavaScript is used to refer to the pure JavaScript without any additional libraries. It is one of the lightest weight frameworks ever.

A.4 VS CODE

Visual Studio Code is a text editor that provides basic support for HTML programming out of the box.

REFERENCES

- [1] Existing site for educational games for kids - . <https://www.educandy.com/>.
- [2] Existing word game for kids - . <https://scotch.io/courses/the-ultimate-guide-to-javascript-algorithms/anagrams>.
- [3] Muhammad 'Azizi Che Sulaiman et al. User interface guidelines for dyslexic game-based learning on selected usability test method. *International Journal of Advanced Trends in Computer Science and Engineering*, 8:439 – 445, 2019.
- [4] G Jaya Dharshini. Supporting dyslexic students with technology in learning. *International Research Journal of Engineering and Technology (IRJET)*, 7:5–7, 2020.