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LEARNING CAN BE FUN

Paavana M[*1], Yashwanth H L[*2], Sona Agrawal[*3], Vishak S[*4], Prof. Swetha P M [*5]

[*1,2,3,4]Undergraduate Students, Department Of Computer Science And Engineering, JSS Science And Technology University, Mysuru, Karnataka, India.

[*5]Assistant Professor, Department Of Computer Science And Engineering, JSS Science And Technology University, Mysuru, Karnataka, India.

ABSTRACT

In this modern era, education is very important, preschool age is critical for kid's development , So the project conduct a review on three possible solutions that can improve learning and teaching in pre-schools. The project will then be proposed and develop the most appropriate solution that will answer the questions. This will also discuss the importance and impact of information and communications technology on teaching and learning in pre-schools and to design and develop a web-based application that will achieve an activity based learning and focuses on using real-world objects to facilitate pre-school learning of the English alphabets, spellings, counting of numbers, recognition and drawing of real world objects.

Keywords: Web Application For Kids, E-Learning Platform For Kids Development.

I. INTRODUCTION

Preschool age is critical for kid's development. A good reading ability and understanding of any child depends on the training he/she receives. This requires the parents to invest more time and money on materials and tools. With the rapid growth in technology today, learning and teaching materials has shifted from the black board to more sophisticated gadgets that support teaching and learning at any level of learning, starting from the preschool to the higher learning. With time, a kid's way of learning also has changed and demand more interactive and a playful environment to learn.

II. METHODOLOGY

This research will identify and discuss the research questions and design. With the world struggling to cope up with the normalcies of everyday life because of the COVID-19 pandemic, we need to try out alternate ways and effectively bring back a new normalcy to get the momentum going and make students start learning again. Especially, kids below the age of 8-10 face real difficulty. The reason for this research is specifically to answer the following research questions.

- What are the teaching and learning difficulties faced with the current preschool programs, and how it can be improved?
- How can the advanced technologies methods of teaching be used for pre schooling and making the children competitive enough from the early schooling days by making sure that they are not stressed mentally while learning new things?
- How can we make sure that the method of learning online with these technologies does not compromise the quality of education provided by traditional means to students?

As soon as the user logs in with their registered id and a password, they will be directed to their profile which will contain their points, progress chart, rank in the leader board, and also two sections, namely: Learning and Playing.

Learning section: The user gets to choose what he/she wants to learn from the given options and will be directed to a drawing area where they will be shown how to draw what they have chosen. Later they will be asked to draw the same. If correctly drawn, a success message will be shown, and that section will be marked as "DONE". And they can learn more or come back to their profile.

Playing section: The user will be shown three levels: Easy, medium, hard. Based on the level the user chooses, challenges will be given to them. If they draw it correctly a certain amount of points based on the level will be added to their profile. If wrong, they can try again or go back.

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The model uses image processing and machine learning algorithms to get trained, recognize and classify the drawing drawn by the kid.

III. MODELING AND ANALYSIS

The web-based application is an e-learning website for kids. We have a lot of research papers on this topic ana different techniques to conduct them. The requirements have been collected from the various stakeholders and have given a clear idea to work it. The technical aspect needed for our project is as follows:

- Operating System: We have chosen Windows operating system because it is easy to use and understand and all the required technology needed to complete the project is very well made for windows.
- ReactJS: The frontend technology for the website as it is SPA (single page application) allowing us to make the application more user- friendly.
- Database: We have decided to opt for MongoDB as our database as it provides us the flexibility to go schema-less design for our models. The methodology used to develop this website are as follows:

ANALYSIS

After an effective conversation with a stakeholder, our team was able to analyze the requirements of the stakeholder, make all the requirements to the customer available on our website and recommend what will be needed to fulfil their needs. This phase includes the requirement analysis of both the admin and kids.

Conceptual Design and research

The web platform system corresponds to web interfaces and tools that are included in the system and provided to administrators, students, or teachers according to their activities in connection with the system. There are three different types of user: administrators, students, and teachers. In order to log into the system, all of these users must type their usernames and passwords on the login page of the system. After logging into the system, administrators can use different management tools to adjust main system features and edit other users' (students and teachers) personal information. Students and teachers, on the other hand, can use educational tools to perform their own activities on the system. • Students can use the related tools to view course lesson contents, study on simulations or animations, and perform other learning activities. • Teachers can adjust features and functions of the educational tools and manage learning activities that are performed by students. The system provides similar web interfaces for each user type and enables all users to perform their activities easily with the support of simple, fast and interactive features and functions.

DEVELOPMENT OF THE PROJECT

In this, the coding phase begins, and the database designs are created. This phase is where all the discussions have been done and are converted into a reality where each page is now served dynamically and hence, they are database driven. Since the discussion phase will be done extensively with the stakeholder as well as with the team it would become much easier for the programmer to produce results quickly and efficiently. The flow of the implementation is as follows:

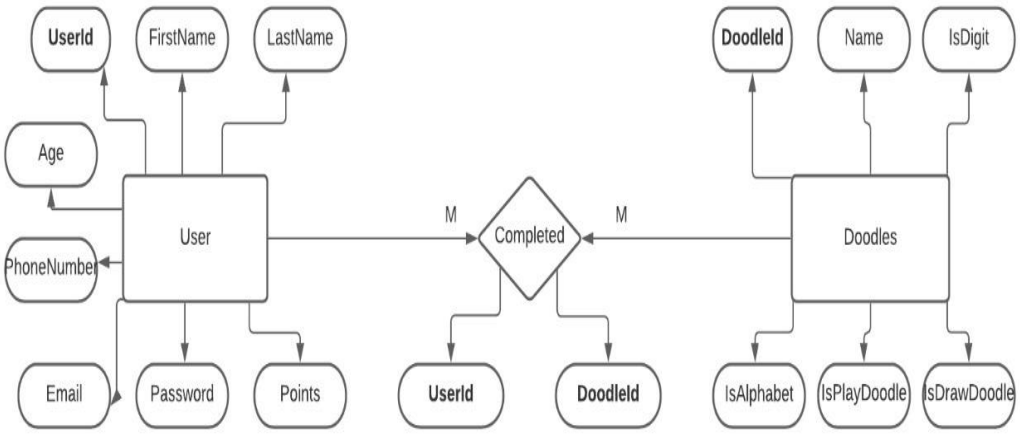

Figure 1: The schema of the implemented tables in MySQL database

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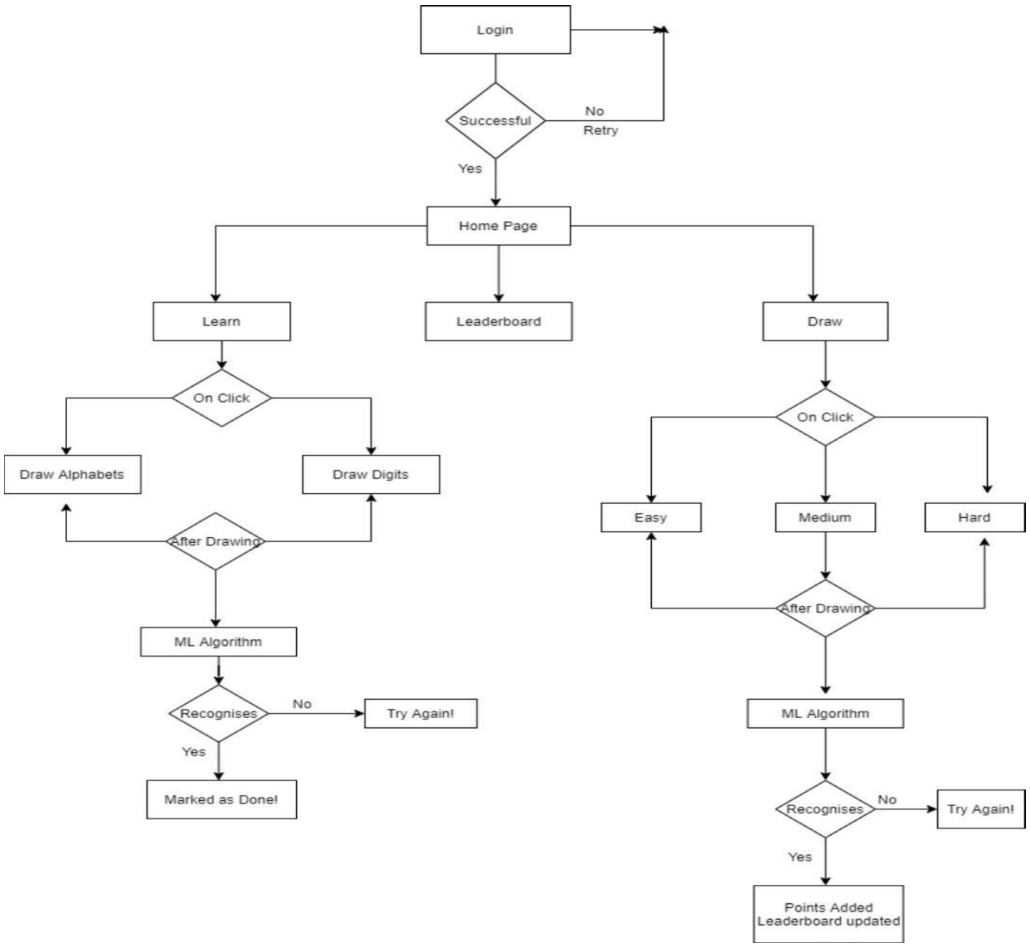

Figure 2: System flow of implementation

IV. RESULTS AND DISCUSSION

The user gets to learn from various categories. The kid can learn digits and alphabets to begin with, and later move on to objects.

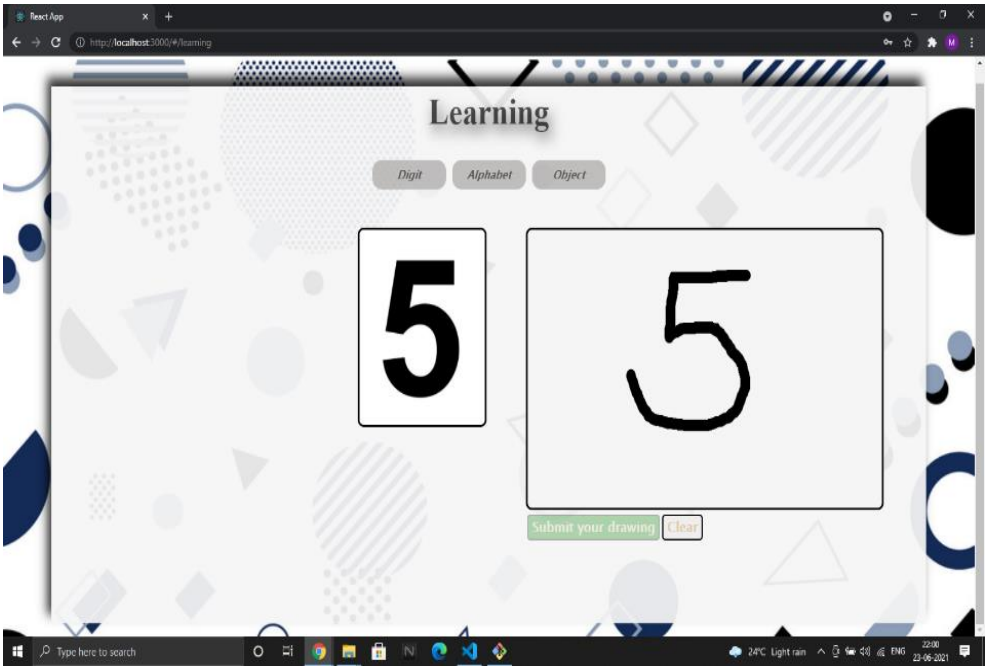

Figure 3: Learning section of digits with canvas.

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The categories learnt are marked in green so the user can go ahead and learn other categories

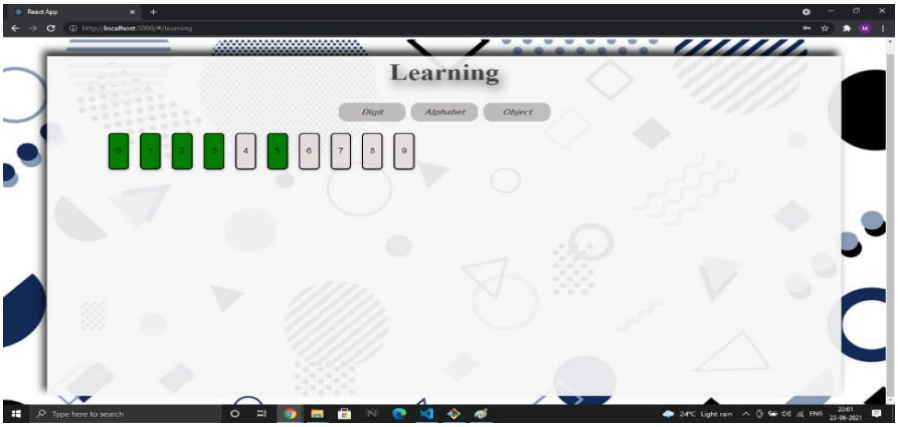

Figure 4: Learning updated section of the learnt elements

The user can practice whatever they've learnt in the drawing section for which they will be awarded with points on successfully drawing it. They can choose the level of difficulty before they try to draw.

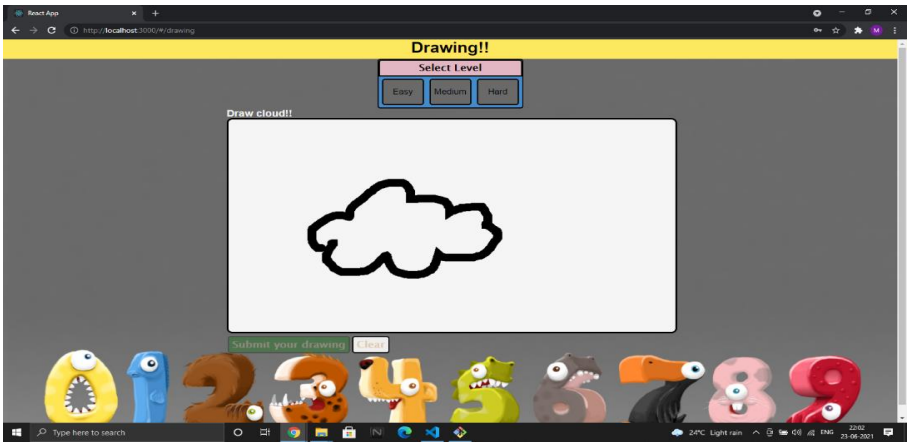

Figure 5: Drawing section with three difficulty levels for the user to practice what is learnt.

The progress page keeps track of how much the user has learnt in the course and how many points has he/she gained by successfully drawing in the drawing section. A leaderboard is displayed showing the details of top 20 users with highest points.

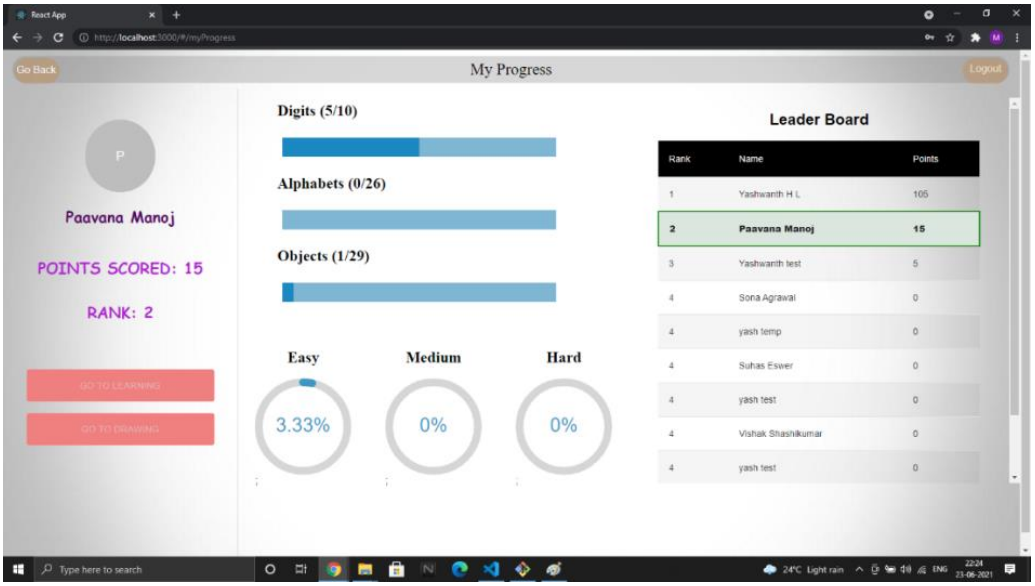

Figure 6: Progress section to keep track of the user's progress in each category.

V. CONCLUSION

Our project "learning can be fun" aims to develop a web-based application that will achieve an activity based learning and focuses on using real-world objects to facilitate pre-school learning of the English alphabets, spellings, counting of numbers, recognition and drawing of real world objects and to improve the efficiency of teaching and learning at the pre-school level and maximizing the speed of learning in growing kids. This model is developed in Python and uses various packages relevant to machine learning. It uses a modular design where every feature is wrapped into a separate module and the modules depend on each other through well-written program. There are several linkable programs available to make user interface easy. The system design: friendly navigation, backgrounds, sounds and colors to attain the attention of kids while learning.

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VI. REFERENCES

[1] Anchit Shrivastava, Isha Jaggi, Shefali Gupta, Deepali Gupta "Handwritten digit recognition using machine learning: A review"

[2] https://ieeexplore.ieee.org/abstract/document/8976601/authors#authors.

[3] Tsung-Han Tsai, Po-Ting Chi, Kuo-Hsing Cheng "The sketch classifier technique with deep learning models realised in an embedded system" https://ieeexplore.ieee.org/document/8724656/authors#authors.

[4] Olisah Kingsley S and Mohamed Ismail Z "web-based E-learning for system for pre-school kids https://www.researchgate.net/publication/319360301_Web_Based_E-learning_System_for_Pre-school_Kids

[5] Rahul Chauhan, Kamal Kumar Ghanshala, R.C Joshi "convolutional neural network (CNN) for image detection and recognition." https://ieeexplore.ieee.org/document/8703316

[6] Kristine Guo, James WoMa, Eric Xu "Quick, Draw! Doodle Recognition" http://cs229.stanford.edu/proj2018/report/98.pdf