****

**VIRTUAL PAATHSHALA**

****

**By :-**

**RATI BHUTKAR**

**NIKETA MHATRE**

**NEHA DUBEY**

**PRIYASHA ANURADHA**

**SUSHRAVYA POOJARY**

**MENTOR – AJAY VIRADIYA**

**[RIL]**

Table of Contents

[Abstract: 3](#_Toc42345952)

[Introduction: 3](#_Toc42345953)

[Virtual Pathshala Features List 4](#_Toc42345954)

[Virtual Pathshala Features Description 4](#_Toc42345955)

[Conclusion 9](#_Toc42345956)

# Abstract:

In today’s world, with the ongoing Covid-19 pandemic, travel restrictions and social distancing is the new norm. Due to closure of schools one would often wonder, how can education be continued, is online learning an effective format of education in the long run? With an efficacious app / website, that suits every need of a teacher and student, productive as well as interactive E-learning is the solution. Therefore we would like to present our “**Virtual Pathshala**” in which, along-with basic functionalities, unique solutions are introduced to overcome current shortcomings.

# Introduction:

With only one goal in mind, i.e. the continuation of Education come what may, we have come up with the idea of offering a rich platform for schools and classes to conduct online sessions in the most constructive manner. **Virtual Paathshala** will eventually reduce the pressure on teachers & parents who have to otherwise keep a constant tab on their children to ensure they are attentive & engaged during online study sessions.

Our unique features are as follows:

1. **2- Way Communication**: With eNote sharing feature, visibility of student’s Notebook to teacher along-with private chat during an on-going session is possible.
2. **Scan Me**: This feature will help identify restless kids by giving a prompt to not just the teacher but the student too. We believe, prompting a kid every time he/she gets out of frame will discourage him/her from fidgeting too much.
3. **Controlled Chat**: Chatting restriction rights are with the organizer of the class in order to provide a controlled environment & avoid inappropriate chats between students.
4. **Test from Home**: By involving AI, a camera can scan the examinee and his environment, detect suspicious activity and report the same. There will be no need of anyone to supervise the examinees. Moving forward, TFH could be the new normal.
5. **Encourage Physical activity**: E.P.T. is basically gym/dance/yoga classes that can be conducted by trainers with a scanning mode, which will calculate energy levels and rank every participant, to motivate them to do better.
6. **E-library -:** Systematic repository of all classes which can be viewed later in case students miss any session due to frequent network fluctuation, illness etc. Additionally all e-textbooks & guides will be available here

# Virtual Pathshala Features List

1. Classroom and Classes formation
2. Attendance
3. Scan Me
4. Class Mode

* View Class
* eNote Sharing
* Screen Share

1. Chat
2. Record / Quick Read
3. Raise Hand
4. Scheduler
5. Test from Home – TFH
6. One-to-One Communication
7. E.P.T – virtual Physical Training
8. Play group
9. Study Session
10. E-Library
11. Monitor Class

# Virtual Pathshala Features Description

**Virtual Pathshala** does not just focus on teaching a class of students, but also includes attendance mark sheet for every student, a calendar to show daily activities and periods, sharing notes, online tests etc. Let us go through these aspects one by one.

1. **Class**

* A teacher/ organizer can create a class (Session) and send an invite to all the students in one go. There will be three fields to be filled,

1. Subject
2. Date, Time & Duration
3. Brief description

* Additionally, the organizer can choose to enable the “Scan Me” option, details of which will be explained further into the document.
* If e Physical Training class is selected, “Scan Me” will be enforced.
* Rights to create a class would be with a Teacher or Supervisor only. If required, one can opt for an email notification to every participant of the class.

1. **Attendance**

* On entering a class, the student’s attendance will be logged automatically.
* If he/she chooses to leave the classroom in between, he can click on “Leave”, which will generate a pop up on the teacher’s screen for permission.
* A student’s attendance sheet can be viewed by the Student, Teacher and Supervisor.
* This attendance sheet will be maintained for a duration opted for, by the organizer or supervisor. This could be specified by entering a date.

1. **Scan Me**

* This feature has been added to especially target those fidgety children. As you may have guessed, this is optional and can be selected by the creator of the classroom.
* If “Scan Me” has been enforced, a student will have to get himself/herself scanned before joining the class. By keeping the phone / tablet in front, a student can sit on his/her desk and get scanned. The scanner remains active while you are attending the class. Every time a student moves, resulting in getting out of frame, an alert will be sent. The teacher will be alerted by highlighting the screen of the student, and the student will be alerted by a pop up on his/her screen.
* The algorithm is such that it would mark a student “out of frame” only if his/her body is more than 50% out of scanning scope and for a duration of more than ~30 secs.
* This feature will be very effective for students aged below 8 or 9 years. Just like in a classroom, every pupil has to sit on his/her assigned chair and is not allowed to stand up or move around without permission, “Scan Me” will also ensure kids don’t fidget too often and attend the class with discipline.

1. **Class mode**

* A Class can be operated in 3 modes,
  1. View Class
  2. eNote Sharing
  3. Screen share

View Class

* By default, for every participant, including organizer, the Class begins with the “View Class” mode.
* If the organizer wishes to provide a lecture on some topic, the View Class mode would be preferred wherein his/her video is visible to all.
* Along with this, the teacher will be able to see small video screens of all the students at once.
* Students will also be able to see small video screens of other participants, but the screen of the teacher will be large and in the center.

eNote Sharing

* During an ongoing session, if a teacher feels the need to draw/write something and display the same to all, he/she can get into the eNote Sharing mode. This is similar to a “Present your screen” seen in many apps.
* The uniqueness of this feature is where all students can also get into the “eNote sharing” mode and the organizer can view every student’s eNotebook in real time.
* It is equivalent to a teacher walking around the class to get a peek into every student’s notebook, in a traditional classroom set up. Unlike the teacher, a student cannot view notebook of another student.
* If the teacher wants to view one student’s eNote, he/she can click on that student’s screen which will enlarge that student’s screen, show his eNote with a small video of his on the side.
* One can select the “Text” & “Draw” option on the eNotebook, like available on Powerpoint, for example.
* If Text is selected , one can type notes
* If Draw is selected, whatever is written or drawn over the touch screen will be replicated as it is on the eNotebook.
* On one page of eNotebook itself, a person can draw as well as write using the above options.
* The beauty of an eNotebook is that it can be maintained just like a notebook. You can have 1 eNotebook per subject and select to open it, edit & add notes.
* Even when the student or teacher isn’t in a class, he will have read & write access to all his eNotes.

Note: The necessary requirement for operating in this mode is the “Metal Pen”. You will need this pen to write /draw over your touch screen device. A Digital Pad can also be used for the same purpose.

Control

* Class organizer can switch between “View class” and “eNoteSharing” modes freely, but can decide whether a student can switch modes at his will or not.
* The selection of control can be changed anytime during the class. By default control is given to the Student.

Screen Share

* Like any other app, one will be able to share his/her screen too. This is helpful if a teacher / student wants to give reference from a personal document or website related to the topic of discussion.
* The control to share screen will be given by default to the Teacher, but can be changed during the session anytime.

1. **Chat**

* The Chat option has been kept for the ease of sharing messages to one another. Following a survey and experience shared by various teachers, we have added certain restrictions on the same,
  + 1. Students cannot open separate chat sessions with each another, whether during a class, or during a study session
    2. Broadcast option can be chosen by teacher to use the chat and send a message to all students, wherein a student cannot respond. This is only one way communication
    3. Organizer can open a personal chat screen with one student, having 2 way communication
    4. Organizer can choose to keep a no restriction group chat, wherein anyone can send & receive messages. But since it is a group chat, organizer and all participants will be part of this conversation
* The Broadcast option will be selected by default.
* A student can choose to initiate a chat with the teacher, say if he/she wants to discuss something in private. Once he/she clicks on the chat option on screen, it will send a request to the teacher, who can choose to accept or decline the same.
* Chat screen can be kept hidden, as per personal choice.

1. **Record / Quick Read**

* A teacher, as well as the pupil can record a study session. The following can be allowed to be recorded,
  1. Video of organizer and his/her notes.
  2. If the eNote or Video of a particular participant has been selected by the teacher to be visible to entire class, like for the purpose of setting an example, then that could be part of the recording.
  3. There is no restriction on recording of audio. Also, one can choose to take a snapshot of whatever is being presented by the teacher, using “Quick Read “ icon.
  4. All snapshots and recordings will be stored in the “My Records” folders, which can be accessible anytime.

1. **Raise Hand**

* Instead of interrupting an ongoing lecture, a participant may prefer to click “Raise Hand”.
* Once this is selected, a notification will be sent to the presenter who can choose to respond. This feature makes sure the discussion is carried out in an organized manner and is less noisy as possible.
* It ensures every participant is audible and can raise questions without any interruptions.

1. **Scheduler**

* A Scheduler can be maintained for all students and teachers to show upcoming classes, activities or tests.
* A schedule can also be shared via email. A teacher can check the schedule of a student and a Supervisor can view the schedule of any teacher and student.
* A schedule is linked with the “Enter Class” on the homepage. The class that is next in line will be opened for the student &/teacher 5 minutes before scheduled time.

1. **Test from Home - TFH**

* The TFH is one of the highlights of Virtual Paath-shala. It can be used by not just schools and universities, but also Competitive Exam organizers.
* To enter the Test, the examinee will have to click on the TFH icon, and then select the exam he/she wishes to give.
* Once the examinee has agreed to begin the Test, he/she will not be allowed to browse anything else on that device.
* The only way to open another page or document on screen is by exiting the Test mode. It basically means the examinee has completed and submitted his/her paper.
* This is the first step to Test from Home. But another major challenge seen is the many ways a person can cheat while giving a test. To ensure we are able to create almost exactly the same environment as in a classroom with examinees, we have come up with the idea of involving AI.
* Test from Home would work best if the student/examinee uses a laptop with camera. Throughout the duration of the exam, the camera will be on, not just recording but also running a scan in the background to detect any suspicious behavior.
* The student and his/her environment will be scanned in the beginning of an exam, and then during the course of the exam. A scan like this would require AI which we are looking into our future scope, so that a supervisor need not be assigned to monitor each examinee.

1. **One-to-One Communication**

* Private conversation between a student and teacher can be achieved using one to one communication.
* Apart from the option of using a personal chat window, a teacher can also put her/himself on hold from the ongoing class and call a student to discuss something.
* In a case where the teacher wants to inform a student about a wrong method being used to solve an equation, or discuss his performance, it can be done privately without being audible to the entire class.
* One to one call can last for only 3 minutes, as its purpose is to have a quick discussion by not keeping the session on hold for long.

1. **E.P.T – Virtual Physical Training**

* Keeping in mind the drop in physical activity due to the recent lockdown and restricted movement expected in the upcoming months, e Physical Training has been included in our Virtual Paathshala.
* Physical activity is a must for all students, and as every school has a PT class, we are also offering the same with some added features,

1. During the Physical training, the screen will be slightly different from a regular class screen. eNote sharing, class mode, raise hand options will not be available.
2. Instead, the entire focus will be on video sharing, scanning entire body of every student and health meter.
3. Using the scan, an algorithm will calculate your energy score and keep showing you a bar. Additionally, your rank based on energy score will also be displayed. This will motivate you to push yourself harder.

* An E.P.T. class can be conducted for Stamina Build training, Dance, Yoga, Cardio etc.

1. **Play group**

* An option of Play group will be provided only during a class, which a teacher can opt for. This has been introduced considering the need of younger kids to play with their peers. A teacher can create 1 play group for an entire class, or divide the class into small teams and create different play groups for them.
* Every play group can select a game from the available options like chess, puzzles, jumbled words etc.
* To include games with physical activity, we can introduce games like dance off, tennis, boxing etc. This involves technology similar to that seen in Xbox or playstation, access to which we do not have yet, but have included in our future scope.
* A teacher can choose the way he/she wants to conduct a play session, either keep the same play group for the entire time, or change teams after sometime to ensure all kids interact with one another.

1. **Study Session**

* A study session can be created by a student or teacher or supervisor. This will come handy in case students want to conduct a group study right before an exam, or otherwise.
* Everything will be the same, just like a class, the only difference here is that the organizer could be a student, and he/she will have the authority to control the chat, shift between class modes etc.
* This feature is advantageous for teachers too, they can create a study session to discuss changes in syllabus, share references etc.

1. **eLibrary**

* Every school has a library, and so does our Virtual Paathshala. Here we call it an eLibrary.
* Other than guides and reference materials, a student or teacher can view classes as well. All classes conducted will be recorded by default and uploaded on a particular folder of the eLibrary, based on the standard and classroom. These recordings can be viewed on the website but cannot be download, unlike personal recording done during a class.
* Access to different classes can be restricted by the school management / supervisor. Either a student can view any class or he can be restricted to view only classes he is part of.
* Guides, textbooks and reference materials will be open to all. Restrictions on this feature can be modified as per the requirements of the school.

1. **Monitor Class**

* Lastly, a Supervisor will have the right to monitor a class, to see how well a session is being conducted.
* He/she can decide to be a silent spectator, or participate in the class. In either case, everyone will be aware when a Supervisor decides to monitor a class. A small icon of “You are being monitored” will be turned on.

# Conclusion

Implementing different technologies on one platform is our idea, which includes AI for Test from home, Image sensing for scanning and Interactive game sessions. Since advanced coding is required for these features we have kept it in our future scope. As of now we have created a web portal as a POC without API integration.

We strive to work towards providing a rich platform that can be equivalent to an actual school. Everything virtually possible will be made available on our platform to ensure it is the best substitute to attending a school.

Hence our efforts will continue even after WiT Hackathon, until we our able to create a fully functional Virtual Paathshala web portal.

