

Smartphone-Based Remote Monitoring Tool for e-Learning

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ABSTRACT In this paper, a smartphone-based e-learning monitoring system is presented. During pandemics, most of the parents are not used to deal with their home office activities and the monitoring of the home school activities of their children. Therefore, a system allowing a parent, teacher to assign task and its execution time to children, could be helpful in this situation. In this work, a mobile application to assign academic tasks to a child, measure execution time, and monitor the child's attention, is proposed. The children are the users of a

mobile application, hosted on a smartphone or tablet device, that displays an assigned task and keeps track of the time consumed by the child to perform this task. Time measurement is performed using face recognition, so it is possible to infer the attention of the child based on the presence or absence of a face. The app also measures the time that the application was in the foreground, as well as the time that the application was sent to the background, to measure boredom. The parent or teacher assigns a task using a desktop application specially designed for this purpose. At the end of the time set by the user, the application sends to the parent or teacher statistics about the execution time of the task and the percentage of attention of the child.

INDEX TERMS Task monitoring, mobile application, face detection applications, Attention Detection.

I INTRODUCTION In this paper, a tool to monitor the learning activities of children whose parents are working in the home is proposed. The developed tool monitors the attention levels of children solving assigned tasks that cannot be supervised by a present adult. The monitoring information is useful for both, parents and teachers, who can use it to make decisions about the revised by a teacher or a parent

Several approaches have been introduced in order to develop

II EXISTING SYSTEM In the existing system, it is difficult to monitor the students during their online exams/daily tests and online classes by their parents, teacher(s) or tutor(s). This may cause a pandemic situation for each and every parent or tutor to know about their children and to grab their attention towards studies. During online classes, the staff may teach the subjects and give some activities through the online class software tools for different gaze estimation purposes in e-learning. Effectiveness of remote learning methods. The proposed tools are focused on handwritten tasks, such as solving arithmetic or algebraic operations, writing some paragraphs or drawing, where children do not directly interact with the smartphone/tablet, and use it only to read the task description and to report image-based evidence of the carried-out work.

based on the students grade. Some students may complete but some may not. The parents who are working from home may busy with their office activities and may not concentrate on their children. In the existing system, we are not having any methods or ideas to make students to complete these activities within the given time with maximum attention.

III PROPOSED SYSTEM In this system, we propose a remote learning system and make it more efficient and more useful for parents, students and staffs. The staff will register their details. The admin has to give permission for the registered staff to proceed with their login process. If the admin rejects a staff, then that staff will not be accessible with their

further process. The authorised staff will proceed their process after logging in. They will add the students along with their personal details who are under his/her class. Then the staff will upload tasks or activities under courses with any number of selected students who need to attend those activities. The students will register with their android mobile phone. Once the course get started, mail will be sent through their parent's email. After getting mail, students will login using

IV MODULES DESCRIPTION

1.Staff Authentication The staff will register with their details. The admin has to give permission for the registered staff to proceed with their login process. If the admin rejects a staff, then that staff their registered email and the password which gets generated while staffs adding students and it will be sent through the parent's email and the student will start the activity. After completing every activity, the imagebased evidence and the video of student while doing activity (attention video) will be saved. The staffs can view the created courses and activities. The students who are added in the activity will get displayed inside that activity. For every activity, the staff can view the performance of the student i.e., the image-based evidence after their activity completion. The attention will get calculated using the attention video in python. After viewing the evidence and the percentage of attention, the staff will enter the mark based on their evidence and attention. Finally, the result will be sent to the

parents. After getting mail, students will login using their registered email and password and start the activity. After completing every activity, the imagebased evidence and the attention video during their activity will be saved.

will not be accessible with their further process.

2.Add students and courses the authorized staff will proceed their process after logging in. They will add the students along with their personal details who are in his/her class. Then the staff will upload tasks or activities under courses with any number of selected students who need to attend those activities.

3.Student Registration and Attention Detection The students will register with their android mobile phone. Once the course get started, mail will be sent through their parent's email.

V IMPLEMENTATION A learning system based on formalized teaching but with the help of electronic resources is known as E-learning. While teaching can be based in or out of the classrooms, the use of computers and the Internet forms the major component of Elearning. E-learning can also be termed as a network enabled transfer of skills and knowledge, and the delivery of education is made to a large number of recipients at the same or different times.

4.Sending Result to Parents The staffs can view the created courses and activities. The students who are added in the activity will get displayed inside that activity. For every activity, the staff can view the performance of the student i.e., the image-based evidence after their activity completion. The attention

will get calculated using the attention video in the python. After viewing the evidence and the percentage of attention, the staff will enter the mark based on their evidence and attention. Finally, the result will sent to the parents.

E-learning has proved to be the best means in the corporate sector, especially when training programs are conducted by MNCs for professionals across the globe and employees are able to acquire important skills while sitting in a board room, or by having seminars, which are conducted for employees of the same or the different organizations under one roof. The schools which use E-learning technologies are a step ahead Earlier, it was not accepted wholeheartedly as it was assumed that this system lacked the human element required in learning.

BLOCK DIAGRAM

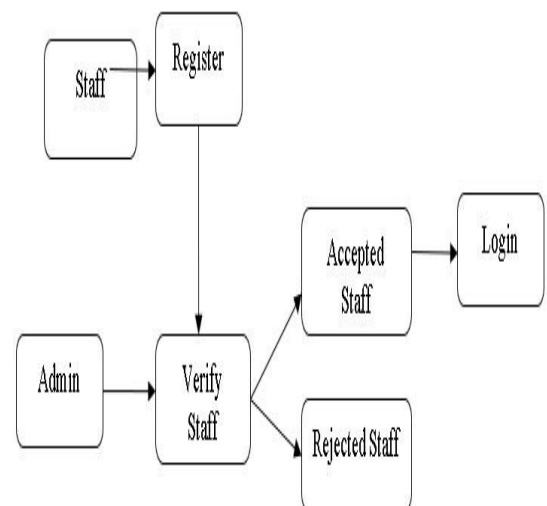
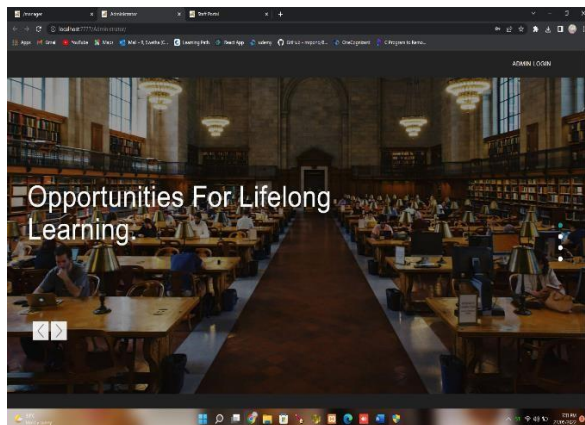


FIGURE 1. Block Diagram

VI SCREENSHOTS



Administrator page
of those which still have the traditional approach
towards learning.

ARCHITECTURE DIAGRAM

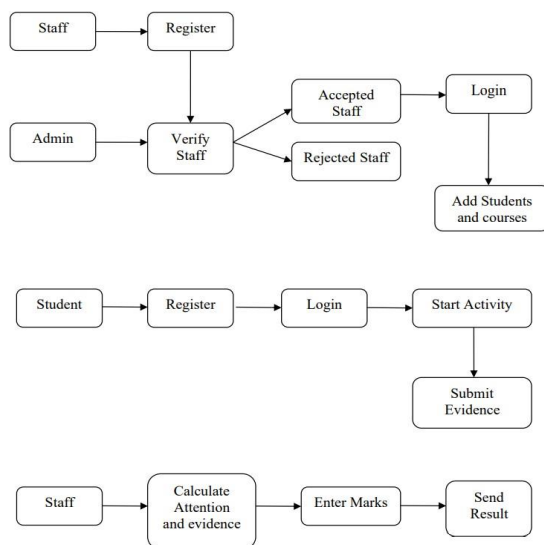
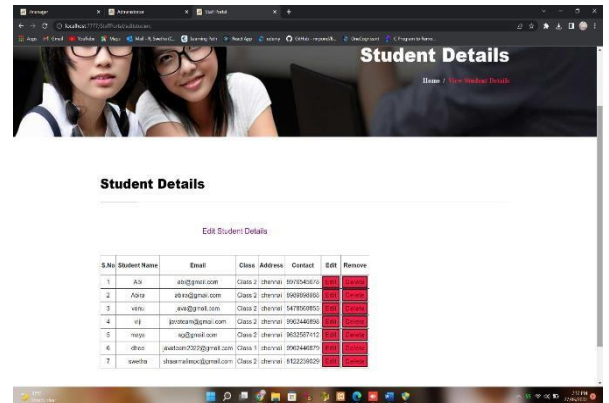
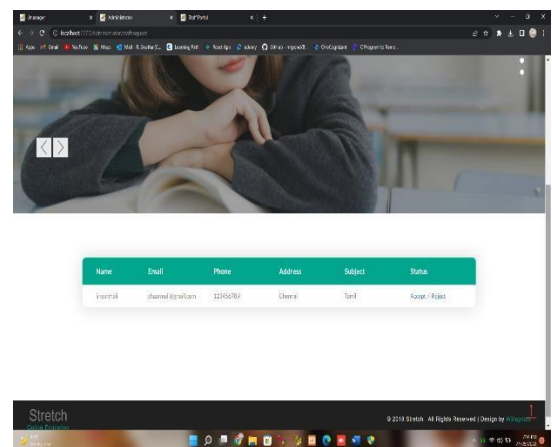


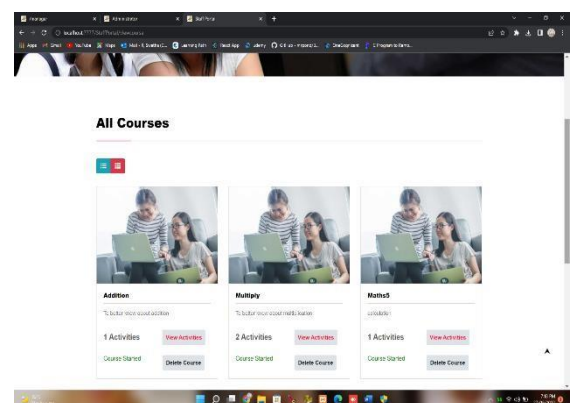
FIGURE 2. Architecture Diagram



List of students added along with their details



Staff request to the admin for the new registered users

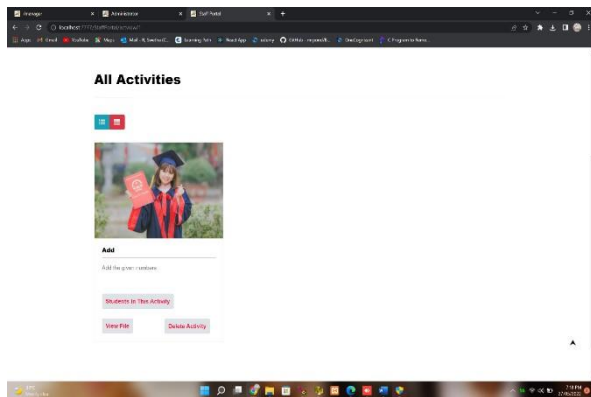


All courses added by the staffs

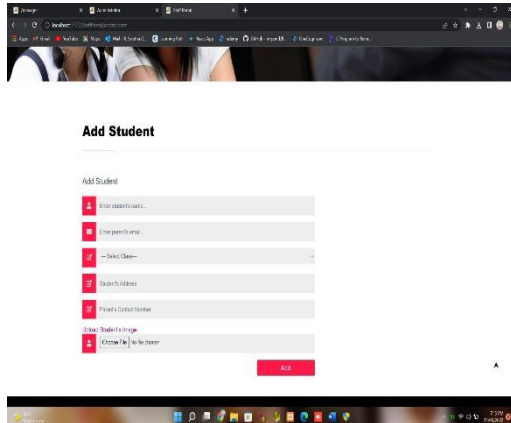
VII CONCLUSION AND FUTURE WORK

In this work, a Remote

Learning Monitoring Systems (RLMS) has been proposed. The proposed systems allow the parent or teacher to use the DaLeMO to assign some learning activities to be carried out by children. Children can use the MaLeMO to read the instructions of these



Assigned students along with their files and option to delete the course



Adding a new student to the course by the staffs

In addition, this system allows the professor to easily customize the activities to be performed by the student, and to get practically instantaneous feedback through the statistics compiled by the MaLeMO. Finally, the results show that the attention monitoring

fails in some isolated cases. This could be enhanced activities, and remotely send imagebased evidence of the performed work. The MaLeMo computes some statistics of the children attention and reports them to the WSLeMO. The teacher/parent can obtain the stored statistics by retrieving them from the WSLeMO and analyze them to make better decisions about learning exercises and techniques to be employed. The MaLeMO is limited to only one user by device, because currently there is no session management. To improve this issue, a session management module must be added to allow multiple children to use the same device. The proposed RLMS allows sending only image-based evidence of the performed work. Complementary modules can be added to extend the current evidence reporting types to other media types (audio-based or video-based evidence). The proposed RLMS assumes that a child can read without problems, so it is intended for children between 7 and 13 years old. A speech synthesis module can be added to extend the age range for younger children. The proposed system improves with the implementation of gaze tracking and attention detection using deep-learning techniques. Although there are advanced techniques to measure attention from gaze tracking, the focus of the proposed work was to measure attention based on the localization of the face and eyes and the time they are visible in front of the application, complemented with timers designed to measure the interruptions of such activity as a result of sending the MaLeMo to the background by opening other apps in the device. To improve the attention measurement,

better gaze tracking methods must be added to the proposed RLMS. Although there are advanced techniques to measure attention from gaze tracking, the focus of the proposed work was to measure attention based on the localization of the face and eyes and the time they are visible in front of the application, complemented with timers designed to measure the interruptions of such activity as a result of sending the MaLeMo to the background by opening other apps in the device. To improve the existing developments by avoiding the use of personal computers and external sensors to remotely monitor learning.

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