

# IoT Based Smart E-Learning System Using Machine Learning

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**Abstract-** The smart e-learning system is a web application which establishes an environment between web application server and end users. This project is developed using machine learning and IoT .using this web-application user can stream the videos live and access the files stored on the server. The medium to access the recourses is internet. This E-learning System is Beneficial to the Distance Education.

**Keywords-** API, virtual classroom, Animation, collaborative tools.

## I. INTRODUCTION

### 1. Background

E-Learning system is the latest concept in spreading education to everyone. The conveniences of learning on line are numerous. Students and those interested in learning over the computer and can choose their own timing that is convenient to them and the classes can be taken at their own place.

This E-Learning system is designed in such a way that the end user (Teacher or Student) can communicate with the server when it is logged on and the user can retrieve the Data(Video,Audio,Ppt,PDF etc.) from the server by issuing the request. Users have his or her own login name and password, which help them to get connected with the server. Here the students are provided with the facility of attending the class of their choice and can choose the faculty according to their wish.

### 2. Application in general form in different areas

1. Video-based courses are one of the effective ways to teach and motivate students to learn.

2. **Animated courses-** Enriching text-oriented or audio-based course material by animations is generally a good way of making the content and its appearance more interesting. Animations are created using macromedia flash or similar technologies.

3. **Social networking-** Technologies in E-Learning promotes increased social interaction E-Learning is an online teaching and learning environment where teachers provide course content through the use of course management applications, multimedia resources and videoconferencing benefits.

## II. LITERATURE SURVEY

**1. Existing work** E-Learning is one of the education based environment developed on web platform that helps in enhancing the level as well as provide ease in spreading knowledge based information to the students in no matter of time. The mode of retrieving information is Wi-Fi i.e. the connection with the established server. With the API growth of smart phones in India this idea will surely adhere to its main issues. Using this web application a user can stream in the video lectures present in the server with which it is connected. One needs to enter the desired login constraints in order to gain access to the server. The only criteria it should match are that the given server is in the range of Wi-Fi network. The secure connection is useful to user can see the list of the video lectures currently present in the server.

### 2. Proposed work converted to concept

- The explosion of the knowledge age has changed the context of what is learnt and how it is learnt – the concept of E-Learning is a manifestation of this knowledge revolution.
- Virtual education is a term describing on-line education using the internet. This term is primarily used in higher education. Some, so-called, virtual universities have also been established.
- A E-Learning is an advanced learning environment, created using internet, computers, video conferencing devices, in which either teacher is not physically present (for remote learning) or students are not present (distance education) in the classroom.

## III. PROPOSED WORK

The E-Learning is a collaborative teaching tool to assist the users to learn in an interactive manner. It's Main

Objective aims to complement the efforts of teachers to integrate technology into their Virtual classrooms and link the students to the internet in educationally productive ways and provide them a positive and enjoyable environment.

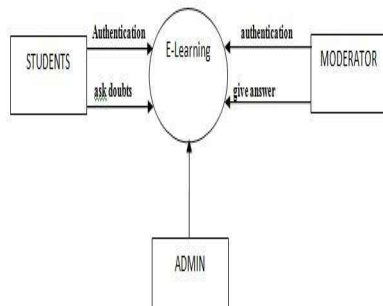


Fig. 1 Higher level architecture.

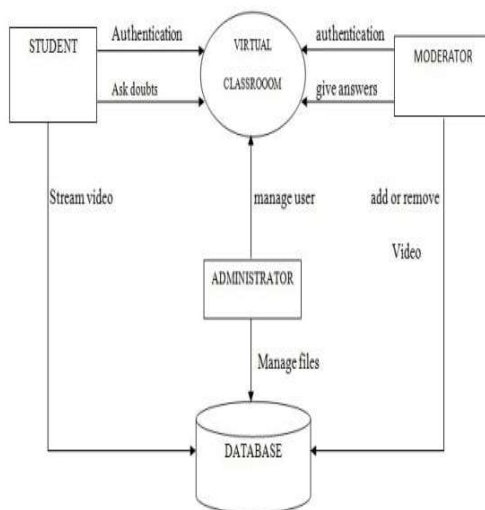


Fig.2 Lower level architecture

It contains the following elements:-

**1. Student login-** It enables a person to login as a student or sign up if he/she has not registered for the classroom. Once logged in a student has the following features:-

- 1.1 Edit profile-** it allows modifying the details
- 1.2 Study material & video lectures-** It displays a list of ppts & interactive video lessons categorized by subjects as posted by the faculty
- 1.3 Ask doubts-** It enables the students to ask questions
- 1.4 Answers-** It shows the answers by the teachers to the questions asked by various students

**2. Faculty login-** It enables a person to login as a faculty member or sign up if he/she has not registered for the

classroom. Once logged in a faculty member has the following features:-

**2.1 Edit profile-** it allows modifying the details

**2.2 Study material & video lectures-** It allows the faculty members to post & remove ppts & video lessons

**2.3 Doubts-** it shows all the questions asked by the students

**2.4 Answers-** it enables teachers to answer the questions asked by the students

**3. Administrator login-** The administrator is the ultimate controller of the application with the highest authority.

Users have the following features:-

**3.1 Student/faculty-**It displays a list of students/faculty members registered for the classroom.

**3.2 Student/faculty request-** it displays a list of students/faculty members whose sign up request is still pending

**3.3 Ppt (upload/del)/video (upload/del)-** it displays a list of ppts & videos posted by the faculty members. The administrator has the power to remove ppt/videos from the list and upload according to wish

**4 Question/answers-** It displays a list of questions asked by students/answers to questions by teachers. The administrator has the power to delete questions/answers from the list.

#### IV. FUNCTIONAL REQUIREMENTS

**1. Authentication-** User authentication refers to verifying a user's identity--in this case, a user seeking access to the E-Learning API. This process ensures that only genuine requests reach the API, protecting users from attempts to fake their identities.

**2. Session-** Moderator has to decide the session time, users that will be invited for the session. While creating a session, he can specify the time and users of the particular session.

**3. Dashboard-** When a participant joins the session, they can view the presentation, which are conducted by the moderator in the E-Learning. The presentation may include the PowerPoint presentation slides or it may also include the snap of the whiteboard on which the moderator can explain the concepts to the students.

**4. Tools designing-** The tools are nothing but the features that are available on the student & moderator dashboard. Like, whiteboard, file sharing, pointer, screen sharing etc.

**5. Chat-** The students can have a conversation with the fellow students publicly or privately via the chat feature available in the interface, the chat allows the participant to send the instant messages to the students who are also attending the session. Students can also send private messages to any of the student but he is not allowed to send private messages to the moderator.

**6. Live streaming-** Live streaming is trending on the internet. This concept is useful for users to interact with each other to provide entirely different learning experience than the traditional classrooms.

## V. EXPERIMENT AND RESULT

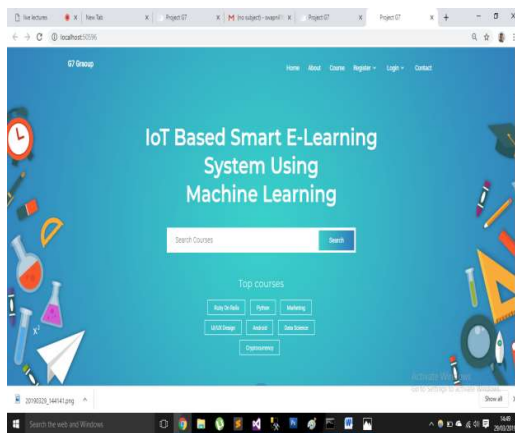


Fig. 1. Home Page.

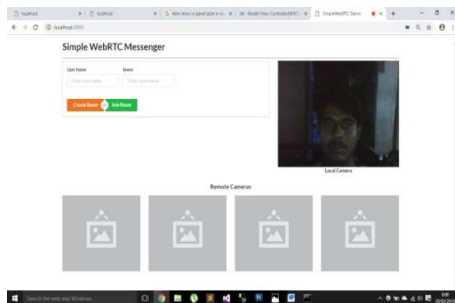


Fig.2 Dashboard Page.

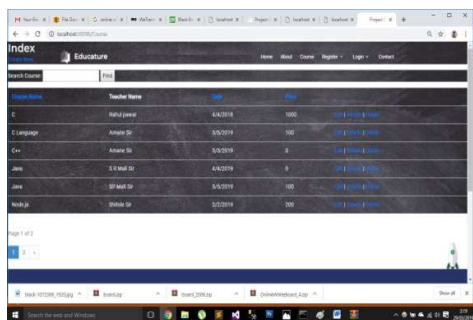


Fig.3 Course Page.

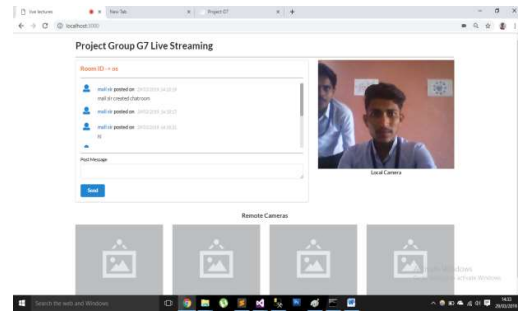


Fig.4 Chat window.

## VI. CONCLUSION

As per the objective mentioned the user will be able to conduct/attend the lectures over an online platform using live video streaming facility.

## REFERENCES

- [1] Dranupamshukla, anshul nigam, pavan kumar goyal and prankul, (2014), "E-Learning – android application for accessing server using wi-fi service", association of computer electronics and electrical engineers, pp. 434- 438.
- [2] Rajnish kumar, swati shahi, (april 2013), "E-Learning system", international journal of engineering trends and technology (ijett) - volume4 issue4- pp. 1231-1236.
- [3] Dr.mujiulhasansiddiqui, (february 2013), "E-Learning learning for higher education: a result of information technology ", international journal of management and social sciences research (ijmssr), volume 2, issn: 2319-4421, no. 2, pp. 84-87.