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# A Review Paper on Virtual Google Classroom Clone Using MERN Technology

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**Abstract -** Virtual Classroom is an advanced learning tool that allows students to communicate with instructors in real time over the network. There are various benefits using virtual classroom such as optimized cost, distance learning, and flexibility which allows them to access material anytime anywhere. However, the difficulty of interaction between instructor and student is a clear disadvantage of the current online learning system. Equipped with various systems that a general virtual classroom must have including presentation tools, Video Player, PDF Viewer. The application also provides more with outstanding interactive features. The integration between improved e-learning and virtual google classroom is highly introduced in our final outcome.

***Key Words*:** e-learning, presentation tool, video player, pdf viewer, real-time video and screen sharing.

## 1.INTRODUCTION:

The rapid growth of Internet technologies has driven to the proliferation of software that provides high flexibility of accessing anytime anywhere and with any devices. Internet software nowadays is more complex, higher performance, and very fast growing. 90% of Internet data is just added within the past two years through various web services. The advantages of web-based software are easy to access, data retention, and ready to use, which is why most of them do not require more plug-in installation. In education, the Internet has been considered as an alternative learning method for a long time since the establishment of the WWW platform. Recently, most schools and universities have at least employing a system which is commonly called E-learning to provide fast educational materials for the students and a better classroom management system. Another advanced approach of online learning is the virtual classroom. A virtual classroom is acceptable to be an advanced learning tool that allows students to face-to-face with instructors in real-time over the Internet. Learn the benefits include active engagement and online participation tools. The trend of virtual classroom toward the increasing of the quality of content is provisioned by the current Internet technology such as cloud computing, high speed internet, fully-featured mobile devices. The development of existing virtual classrooms generally employs multiple synchronous technologies, such as video conferencing, presentation tools, and online whiteboard, which are common and well-fitted to remote students with the ability to collaborate in real time.

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## 2. LITERATURE REVIEW:

In this section we provide an overview of existing research to support the concept of application. In 1991, Deshpande showed research first about an interactive virtual classroom multimedia for distance learning system including online whiteboard and conventional video, then 2001 improved work for a real-time interactive virtual classroom multimedia distance learning system has released and reviewed. Back to 1996, Sankar showed video-conferencing in a classroom, introducing case studies and video conferencing-based projects to supplement lectures in teaching a graduate level telecommunication management course. Then 1997, Byung Oh showed an application sharing object and behaviour for collaboration-based system. Application sharing allows the joint working based on a single-user application. The user can share a program running on a computer with other people who are geographically separated. 34 In Thailand, Surachai showed the real-time classroom system with two-way communication for distance learning in 2006.

## 3. OBJECTIVE:

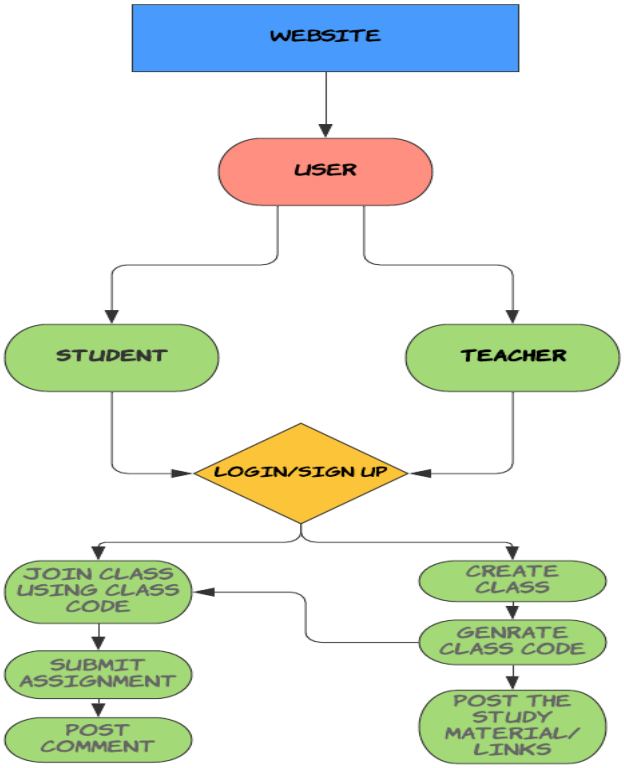
As we observed the current state of online learning from various software, we found that most of the problem is about "low interaction" between students and instructors. Compare to traditional learning style, there are full of socialized interaction that create the experience of participant more engaging and help to preserve the flow of learning process.

## 4. MOTIVATION:

A virtual classroom is acceptable to be an advance learning tools on that corona pandemic allow students to face-to-face with instructors in real-time over the Internet.

## 5. PROPOSED WORK:

As Web-based Interactive Virtual Classroom (WebIVC) is our approach to integrate e-learning and virtual




classroom, WebIVC is allowed multiple accesses on devices and web-based software without additional plugin or tool. The system of WebIVC consists of five main components: authentication, classroom and conference. It is supported the REST API to request and response between functions.

Figure no.1 Flowchart of Virtual Google Classroom Clone

## 6. CONCLUSION:

This software is mainly designed to aim at the integration of e-learning experience and virtual classroom by applying additional interactive tools. All features are organized and performed as web-based application including socialized interactive tools. The new web-based technologies, IOSocket are introduced to create real-time communication and enable API services. The experiments showed that WebIVC could help to improve online class experience and increase user engagement.

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