

---

## Identifying the authenticity of registered participants for an online Zoom session: A conceptual architecture

Jayasinghe P.K.S.C. \*, Wijerathna E.H.M.P.M. and Rajapaksha S.Y.  
*Department of Information and Communication Technology,  
Faculty of Technology, University of Ruhuna, Matara, Sri Lanka.*

The Covid-19 pandemic has resulted in drastic changes in the educational sector. Due to the social distancing health regulations, the education systems all around the world have adopted a distance and digitalized learning/teaching method. Learning and teaching in a digitalized classroom has its own benefits and limitations. This research focuses on a technical drawback that makes teachers unable to detect whether participants of a session are authorized participants or not. The given solution is a conceptual framework which is suggested as an add-on feature in Zoom. Using this feature, teachers can detect the authenticity of participants. According to the proposed framework, images of participants are captured automatically within a defined time interval. This is done by manipulating the camera and making the preview invisible. The captured images are sent to the Zoom cloud to authenticate the identity of the participant. A classifier model is trained using image feature vectors for authentication. Technologies and libraries like face embedding, Artificial Neural Network (Keras and Tensorflow), and OpenCV are used for this process. If proven to be genuine participants, they are accepted to the meeting from the waiting room. The validity of the participant in the session is checked time to time. Periodically captured images are sent to the participant validation. If a participant is detected as invalid during these occasions, he is removed from the session to the waiting room after alerting the host. Since this is a conceptual framework, it is required to be validated empirically. The host's inability to capture the images of participants, if they have not given initial camera access to Zoom and the cloud storage capacity depending on the number of participants are few limitations of this framework. However, it is ideal for online exam proctoring and paid online classes.

**Keywords:** Authentication, Framework, Image processing, Neural networks, Online sessions

\* Corresponding author: subash@ictec.ruh.ac.lk