Real-Time Student Enthusiasm Evaluation During in a Lesson Using AIoT

Oleh: Muslikhin, Rizqi Ilyasa Aghni, Samsul Hadi

ABSTRAK

Abstract— Maintaining students' positive enthusiasm during class is very necessary and is one of the determinants of learning success. Enthusiasm for learning can be recognized through monitoring the emotions of each student in the learning process in class. The general pattern of enthusiasm for learning fulfills the cosine wave rule: high at the beginning, low in the second part, returns to the break-even point in the third part, and tends to rise at the end when the class is about to end. In this paper, to measure enthusiasm in real-time, we adopt an artificial intelligence-internet of Things (AIoT) approach. Enthusiasm is represented by the emotions in students' facial expressions, which are captured by the camera for detection and recognition as types of expression. The webcam camera is integrated into the study table, which is positioned in such a way that it can monitor every student's movement within the camera's field of view (FoV) coverage. The face input is sent to the cloud, and then the proxy detects it using YOLOv3 with the SqueezeNet extractor feature, where the face image has been downloaded first. The recognition result data is sent back to the server; on the other hand, the teacher can see the evaluation result information with his device. Therefore, the teacher can monitor the evaluation of learning enthusiasm in real time and choose the right learning strategy at that time. This approach has been applied to classroom learning with acceptable system accuracy and errors.

Kata Kunci: *Artificial intelligence internet of things, SqueezeNet feature extractor, student emotion, student antusiasm detection, YOLOv3.*