ABSTRACT

Caring for a baby is one of the mandatory duties of parents so that the baby remains safe and comfortable. The rapid development of technology today allows its application to answer problems for parents who cannot take care of their babies directly on an ongoing basis.

In this study the authors designed a system that can help parents to keep their babies monitored and awake. The baby monitoring system is a system that uses object detection to detect the movement of the baby plus the classification of the baby's position (when the baby covers something, lies on his stomach, and sleeps) with the YOLO (machine learning) technique and the system can provide information to the user's cellphone using the method Internet for everything.

The purpose of this research is to make a baby monitoring system tool using the internet of things to help parents keep their babies awake. The system can monitor baby's position with the lowest accuracy is 80% and the highest accuracy is 100% using the TinyYOLOv3 object detection model. In this study the tool can detect the baby's position according to the class given (sleeping, side-sleeping, obstacle, and on his stomach) and the output of the detection is stored in Firebase so that the detection can be connected to the user's cellphone as a notification. The best accuracy results are found at 416x416 resolution and the best FPS results are at 2.1 FPS at 96x96 resolution.

Keywords: *Baby Monitoring, object detection, internet of things, machine learning, yolo.*