

ABSTRACT

In Indonesia, using a manual system for recording water causes customer losses due to inaccurate readings of water meters and miscalculated volumes. This problem is made worse by limited access to the water meter, for instance, when no one is at home or the meter is behind a locked fence, which prevents officers from taking direct readings and leads to many complaints from customers about unusually high water bills. On the plan map of *Sistem Pemerintahan Berbasis Elektronik (SPBE)* or e-Government for 2021-2025, there is a Smart City implementation program which include Smart Environment inside. To manage natural water resources, water supply companies need a water meter to record and calculate the discharge of water that has been distributed to consumers. One results of IoT research is a Smart Water Meter which had functions to read the water meter automatically.

Based on previous research, there is a proposal to design a separate water meter by replacing the existing meter. In order to make it easier for customers to install the device and not incur large costs, a device is needed that can be placed above to the water meter without having to replace the existing water meter. The size of the device designed must be compact considering the location of the water meter is quite limited, it make the ESP32-CAM is suitable to used because it is small and does not take up much space. This research focuses on developing a compact Smart Water Meter using the ESP32-CAM microcontroller and image processing to support the transformation of traditional businesses into digital businesses. The device will send images to Firebase, then the images will be processed using Google Vision. It is expected that the error results of the image processing less than 10% and accuracy more than 97%, result can be seen through the web and direct payment can be made. The implementation of the Smart Water Meter will be through lease cooperation from the development company with the water company.

Keywords: Smart Water Meter, OCR, Image Processing, IoT, Web Development.