ABSTRACT

Bandung is the capital of West Java which can not be separated from the flood problem, especially in the southern region. Losses caused by the flooding is huge both materially and lives. Therefore a system is needed that can tell when the floods come and what areas are affected to allow proper evacuation and can inform the possibility of flooding several hours before the floods occur.

Flood detection system using Exponential Smoothing Holt-Winter forecasting. This forecasting technique helps to know when a flood occurred with the previous year's water debit data and with the help of Geographic Information System showed flood-affected areas corresponding to previous year's flooded inundation data. Then with the help of Arduino Uno hardware provide water debit and water level data directly obtained from the water debit sensor and ultrasonic sensor then calculate the possibility of flooding in accordance with the area in the previous year's floodwater data and with the help of the database using mysql to display such information such as Map of puddles of flood, water discharge and water level.

By using the original data of water debit from 2013-2016 obtained forecasting with MAPE of 0.8854% using alpha of 0.9, Beta of 0 and gamma of 0.9 which means the performance of holt-winter method is already very good. Based on performance testing, the more original data used to forecast then the more time access required to process the forecasting results.

Keywords: *Exponential Smoothing Holt-Winter, Geographic Information System, Webserver, Mysql*