Determination of Flood-Prone Areas in Sidoarjo Regency Using Simple Additive Weighting Method Based on a Website

Mochammad Rifki Ulil Albaab, ST., M.Tr.T. as the supervisor

Junia Vitasari
D4 Program in Informatics Engineering (Sidoarjo Campus)
Department of Information Technology

ABSTRACT

Indonesia is one of the countries with a high vulnerability to natural disasters, particularly floods. According to data from the Regional Disaster Management Agency (BPBD) of Sidoarjo Regency (2024), seven flood events occurred between January and February 2024, affecting 2,892 households and causing 450 people to evacuate. The lack of information about flood-prone areas has become a barrier for the community in implementing effective mitigation measures. This study aims to develop a flood map website with two user roles: an admin for calculating flood risk using the Simple Additive Weighting (SAW) method, and a public-facing website for displaying the analysis results in the form of a Geographic Information System (GIS)-based map. The Simple Additive Weighting (SAW) method is used to assign weights to various factors influencing floods, such as rainfall, the number of rainy days, elevation, and the percentage of settlements. System testing using the Black Box Testing method with Equivalence Partitioning technique showed a success rate of 95% and a calculation accuracy of 100%. The results of this study are expected to provide accurate and easily accessible information, enabling the community to take more effective anticipatory actions in facing the flood risks in Sidoarjo Regency.

Keywords: Flood, Simple Additive Weighting (SAW), Geographic Information System (GIS), Sidoarjo Regency, Black Box Testing