RANCANG BANGUN PROTOTYPE ALAT MONITORING DAN PERINGATAN DINI PADA *STRUCTURE HEALTH MONITORING SYSTEM* (SHMS) BERDASARKAN VARIABEL AKSI ALAM

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ABSTRACT

A bridge is a connecting infrastructure between areas separated by rivers, valleys, and other traffic crossings, causing short travel times. The inadequate operation, aging, nature, and human-caused damage threaten the bridge infrastructure's safety and capabilities. In avoiding these conditions, an assessment of the condition of the bridge is required. One of the bridge physical health assessment methods is SHMS (Structural Health Monitoring System). Technically, SHMS functions as monitoring (condition monitoring) and early-warning (structure security early warning). However, the implementation of SHMS (Structure Health Monitoring System) is not comprehensive. SHMS (Structure Health Monitoring System) only applies to medium to long-span bridges. This Final Project research develops an SHMS (Structure Health Monitoring System) prototype that focuses on natural action parameters that also apply to short span bridges. The natural action parameters used are wind speed, air temperature, and water level. The research uses hardware components used by the Structure Health Monitoring System (SHMS) prototype for recording bridge condition data consist of the Anemometer sensor, HC-SR04 proximity sensor, DS18B20 temperature sensor, and Robotdyn Uno R3 + ESP8266. The software components used as data storage for bridge conditions and interface displays consist of MySQL and the Laravel framework. Prototype Structure Health Monitoring System in this study is a system that provides information on bridge conditions to institutions that handle bridge maintenance and to bridge users.

Keywords: SHMS, Monitoring, Initial Warning