ENGINEERING THE WEATHER SENSOR SYSTEM BASED ON IoT FOR MONITORING THE DEVELOPMENT OF turtle on the coast of the South Coast SPECIAL REGION OF YOGYAKARTA

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ABSTRACT

Turtles are reptiles that live in the sea. The existence of sea turtles has long been threatened, both from nature and human activities that directly or indirectly endanger the population. Cold weather can hamper the hatching process of turtle eggs due to the lack of heat in the egg nests under the sea sand. Cold weather can thwart the turtle egg hatching process by up to 50% and will increase the time of hatching eggs by up to 55 days. This obstacle is faced in the conservation process in most turtle conservation areas. The problem of turtle management in Indonesia is faced with a situation that is quite complex and involves many stakeholders. Coastal community groups carry out efforts to protect, monitor nesting beaches, and develop habitat. Support from WWF-Indonesia is in the form of monitoring activities for turtle nests. Several private parties provide support for turtle conservation through CSR (Corporate Social Responsibility) activities. Meanwhile, tertiary institutions are one of the stakeholders who have a big role in efforts to conserve turtles through research and development programs in efforts to conserve turtles from upstream to downstream.

This study was designed for a multi-year scheme, namely for 2 years. The research target for the first year (2020) is the development of a weather sensor system engineering prototype based on the Internet of Things for monitoring turtle breeding on the southern coast of the Special Region of Yogyakarta. The device to be developed is in the form of sensor system hardware that can detect environmental temperature and humidity conditions (air and sand) which can be monitored and controlled remotely via an android application or a web browser. In the second year (2021), the study will be continued with the title Engineering Weather Data Mining System for Monitoring Turtle Breeding in the Southern Coast of Yogyakarta Special Region. Digital signal processing software that will be developed is application software that can present measurement results in the form of temperature and humidity graphs, as well as several other parameters related to coastal weather conditions. The results of this study can be used to monitor weather conditions on the coast, so that weather data can be taken into consideration in making decisions regarding the conservation of turtle egg hatching.

The software development method chosen is the Rational Unified Process (RUP), where the risks and errors found will be corrected in several iterations so as to produce a good architecture and high quality software applications. The RUP consists of several stages, namely Inception, Elaboration, Construction, and Transition. At each stage in the RUP, an iteration of the business modeling process, requirements, analysis & design, implementation, test, deployment, configuration & change management, project management, and the environment is carried out.

Kata Kunci: *IoT, turtle, sensor, weather*