

Weather Data Mining System Engineering for Monitoring Turtle Breeding on the South Coast of DIY

by Adi Dewanto, Eko Marpanaji, Rizqi Aji Surya Putra

ABSTRACT

Turtles are reptiles that live in the sea. The existence of sea turtles has long been under threat, both from nature and human activities which endanger their populations directly or indirectly. Cold weather can hinder the hatching process of turtle eggs due to the lack of heat in the egg nests which are under piles of sea sand. Cold weather can thwart the turtle egg hatching process by up to 50% and will increase the egg hatching process time by up to 55 days. This is the obstacle faced in the conservation process in most turtle conservation areas.

The problem of turtle management in Indonesia is faced with a quite complex situation and involves many stakeholders. Coastal community groups carry out security efforts, 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, universities are one of the stakeholders who have a big role in efforts to conserve sea turtles through research and development programs in efforts to conserve turtles from upstream to downstream. This research is a continuation of the previous research scheme. Multi-year research scheme 2020 to 2021, which was implemented previously, has produced two prototypes, namely an Internet of Things-based weather sensor system based on a Wireless Sensor Network for monitoring sea turtle breeding on the southern coast of the Special Region of Yogyakarta and a prototype for remote monitoring and control devices via an Android application or web browser. The hardware prototype (2020) that has been developed is a hardware sensor system that can detect environmental temperature and humidity conditions (air and sand).

This hardware prototype can be monitored and controlled remotely via an Android application or web browser (2022). To continue the research that has been carried out before, in 2022 the research will be continued with the Weather Data Mining System for Monitoring Turtle Breeding on the South Coast of the Special Region of Yogyakarta. The monitoring software prototype that has been developed is capable of processing digital signals and can present measurement results in the form of temperature and humidity graphs, as well as several other parameters related to weather conditions on the coast. The measurement results that have been obtained are then stored and analyzed to be used as a consideration in making decisions regarding the conservation of turtle hatching eggs.

Kata Kunci: *Turtle Breeding, Internet of Things, Wireless Sensor Network*