ABSTRACT

Bicycle is one of alternative transportation that its eco-friendliness because it does not emit exhaust emissions. Telkom University has implemented the use of campus bike, which is still prone to criminal acts such as thievery and its use is still not as intended, such as use on outside the campus area. Campus bike can be handled in various ways, one of the effective and effcicient ways is with a monitoring. Usage utility and campus bicycle monitoring systems should be able to work automatically, continuous, realtime and accurate.

To implement a monitoring system in this Final Project, Author propose a monitoring system based on Global Positioning System (GPS) by utilizing machine-to-machine (M2M). Monitoring system that built in this final project is a prototype with application that connects to server. To test the monitoring system prototype is implemented and tested in engineering faculty of Telkom University.

This final project is intended to implement and determine performance level of the monitoring system protoype based on positioning accuracy level and validation area of use. Positioning accuracy level has the average of different position is about 3,62 meters, with the nearest different position is about 2,6 meters and the farthest different position is about 5,9 meters. Several factors can affect the performance, which is the effect of the satellites interaction with GPS, such as weather and obstructed the building. Validation area of use by using a formula equation of the circle was able to detect whether a bike campus located in the area of campus or outside the area of campus as campus bycicle usage utility monitoring on usage utility and campus bicycle monitoring systems prototype. Overall, this usage utility and campus bicycle monitoring systems prototype can be implemented as a prototype that could be developed and be an alternative solution for Telkom University in addressing the existing problems.

Keyword: Criminal acts, monitoring, M2M, performance