DESIGN AND IMPLEMENTATION DETECTION
AND NOTIFICATION SYSTEM FOR BICYCLIST
WITH ASYNCHRONOUS DATA COMMUNICATION
BASED ON PUBLISH-SUBSCRIBE SYSTEM

Name       : Enrico Roy
NRP      : 5110 100 092
Major      : Teknik Informatika FTIf-ITS
Advisor I  : Waskitho Wibisono, S.Kom., M.Eng., Ph.D.
Advisor II : Royyana Muslim Ijtihadie, S.Kom., M.Kom., Ph.D.

ABSTRACT

The opportunity of fatal accident for bicyclists. The first aid in the accident of bicyclist will be hard because there is no system for detecting the troubles. The article has the implementation of application which can monitoring, tracking activities, and doing synchronization of consignment data in asynchronous based on publish-subscribe system from the bicyclists' smartphone. The smartphone of bicyclist used to take accelerometer sensor data and coordinate position of bicyclist data. Data-processing uses Naïve Bayes clasification method to take high level information when the bicycle runs, stops, falls and also other information. Futhermore, high level information sent from the server to subscriber according to filtering data process based on events or desired contents of subscriber.

The system has been implemented and done in a catena tests of functionality, scenarios in publisher and subscriber, and performance. Functionality tests has been done in tested the processes and operates a function in the system from the input until the output. The scenario tests of publisher and subscriber has been done in given scenarios in various conditions. The performance
tests catena has been done in found out succesfull rate of delivering high level information and classification method accuration. The result of scenarios in publisher and subscriber successfully tested in accordance with the model, so that the synchronization of data transmission can be use asynchronous communication. The result of performance can give the passable result. The result of the experiments shows that the Naive Bayesian classification method gives 92.22% for all activities using various sampling length.

Keyword : Accelerometer, Android, Naïve Bayes, Publish- Subscribe System.