

## Abstract

Bicycle is a means of transportation that is cheap and environmentally friendly. Along with the Green Campus program that has been designed, Telkom University procure bicycles. The current campus bicycles system is still not good, yet practical, and yet safe. From the fact, there is a needed system that could make bicycles rent easier and minimizing cases of damage to the bike and bike security threats on campus, so a campus bicycles security prototype based on microcontroller built.

To implement the campus bicycles security system RFID sensors that arranged using the Arduino Uno is used. The prototype using two (2) pieces of the RFID sensor, the first sensor is used to record the borrower and the second RFID sensor is used to record what was borrowed bike. On the validity of the test showed that the prototype is capable of reading RFID tags that have been registered with the percentage of 100%, while RFID tags that are not registered as a greater percentage of 0%. Performance testing of reading data showed that blocking metal RFID Reader reads the data from the RFID tag with the percentage of successful reading of 0%, whereas with a cloth purse and a plastic name tag generates a percentage of 100%. Testing the response time of the system shows that the average response time on the system in the process of borrowing RFID01: 364 ms and RFID02: 402 ms, and the return process is RFID01: 364 ms and RFID02: 367 ms. Response time of less than 2 seconds (2000 milliseconds) indicates that the response time of the system is sufficient. Overall, the campus bicycle prototype can be implemented as a prototype that has the potential to be developed and be an alternative solution for bicycles on the campus of the Telkom University.

**Kata Kunci :** RFID, Green Campus, Campus Bike, Arduino Uno, Rent.