

## **ABSTRACT**

Cashless Payment is a non-cash payment method. This payment method has been applied to electronic trading applications (e-commerce). In e-commerce applications, cashless payments can be implemented with payment gateway integration. Payment Gateway is a non-cash payment channel which make online transactions in the application. In addition to e-commerce applications, payment gateway can be integrated into other payment applications such as late payment for returning books at the Telkom University Open Library.

The process of paying fines still have obstacles, when patron can't transaction via cash, but cashless. With an application that has an integrated payment gateway, patrons can pay fines independently, which is known as self payment. Self payment not made directly interacting with admin. As confirmation when the payment has been completed by sending an email to the user via the Simple Mail Transfer Protocol (SMTP), and transactions that have been made by the user will be stored in the database as payment history.

The book delay payment application has been testing for delay from the client to the server on the payment gateway and resource utilization in CPU, Memory and Network usage. Application testing for delay produces is 15.43 ms on one device and 101.29 ms on two device the value of testing has met the ITU-T G.1010 standard of delay in process transactions. Meanwhile value of utilization resource for CPU is 7%, Memory 10% and Network I/O 151.5 Kbps.

**Keywords:** *Cashless Payment, Payment Gateway, SMTP, Open Library, Delay, Utilization Resource*