The proliferation of E-commerce technology has created a new paradigm in Information Management and Business sectors. As a way of business, it needs a new business model. In a transaction wise, the critical aspects are privacy and trust, and the key element is authentication.

This paper is a research on authentication system characteristics in Internet based e-commerce. A research has been conducted to identify the problems in the authentication of electronic transaction as an aspect of e-commerce.

The research used qualitative data gathering, SWOT analysis, TOWS Matrix, and Critical Success Factor method to analyze the findings.

The characteristics of authentication system in electronic transaction resulted from this particular research are; The needs of due care implementation for the authentication system in an e-commerce environment and Public Key Infrastructure implementation, as the most robust authentication scheme available nowadays.

Keywords: Secure Authentication, Public Key Infrastructure, Information System Security, E-commerce.