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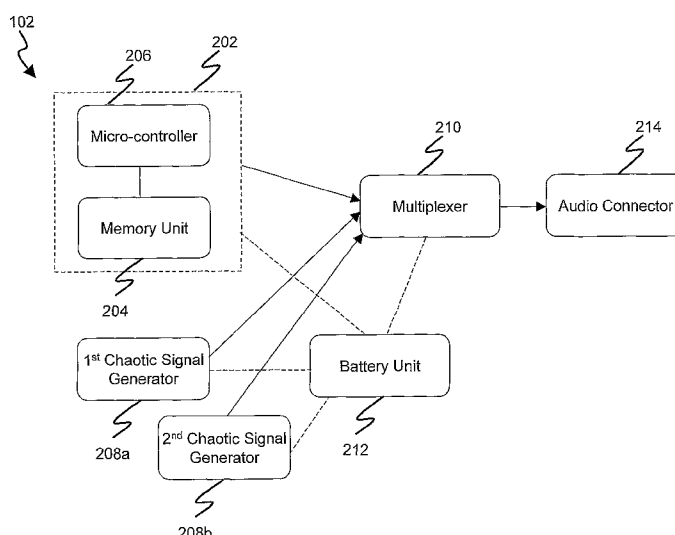
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(57) Abstract: The adoption of authentication products is entering mainstream in the face of repeated security breaches on information networks and alerting consumers and enterprises to the danger posed by identity theft and phishing attacks as a result of using weak and insecure static passwords. USB-based authentication devices are among the most commonly deployed authentication solutions due to cheaper costs. However, a problem with USB-based authentication devices is that the authentication keys can easily be intercepted and cracked, considering the rapid technological advancement in computer processing power. The predictability in the data format of the authentication keys during the key transfer phase further contributes to the problem. An embodiment of the invention disclose an authentication device that obfuscate the authentication keys in an unpredictable format using chaotic signals, thereby increasing the difficulty of intercepting and cracking the authentication keys required for authenticating users accessing information on computer-based systems.