**ALTERNATE METHOD FOR OTP BASED AUTHENTICATION IN**

**AREAS**

**WITH WEAK SIGNAL**

**Abstract:**

In regions with weak or inconsistent mobile signal, traditional One-Time Password (OTP) based authentication, typically delivered via SMS, often experiences delays, rendering the process inefficient and sometimes unfeasible. This paper introduces an alternative method for OTP-based authentication tailored for such challenging areas. Our proposed system amalgamates the conventional OTP mechanism with an email-based private key distribution. During the user registration phase, the system not only generates an OTP but simultaneously creates a unique private key for each user. This private key is dispatched to the user's email address promptly. In instances where the OTP reception is delayed due to signal-related issues, users can opt to utilize their private key for authentication purposes. By providing this dual-mode authentication, the method ensures that users in areas with weak signal strength can still access services seamlessly without compromising on security.