Implementing Encryption Algorithms

```
// Arduino code for XOR-based encryption using the quantum key

String encryptDecrypt(String message, String key) {
  String result = "";
  for (int i = 0; i < message.length(); i++) {
    result += char(message[i] ^ key[i % key.length()]);
  }
  return result;
}

void loop() {
  String key = "1010101010"; // Example key (in a real scenario, this would be generated)
  String message = "Hello, World!";

  // Encrypt the message
  String encryptedMessage = encryptDecrypt(message, key);
  Serial.println("Encrypted Message: " + encryptedMessage);

  // Decrypt the message
  String decryptedMessage = encryptDecrypt(encryptedMessage, key);
  Serial.println("Decrypted Message: " + decryptedMessage);

  delay(5000); // Wait before the next iteration
}
```