



\*\*\*\*\*  
**DESIGN AND DEVELOPMENT OF AN AUTOMOTIVE SECURITY  
ALERT SYSTEM WITH STEERING WHEEL LOCK SYSTEM**

**KENT JOSHUA U. HORNALEZ**

Bachelor of Science in Computer Science

Dr. Francisco L. Calingasan Memorial Colleges Foundation, Inc.

**ABSTRACT**

This study presents the design and development of an automotive security alert system with a steering wheel lock mechanism using Arduino Uno. The system integrates hardware components, embedded software, and a smartphone-based interface to enhance vehicle security by detecting unauthorized access, triggering real-time call alarm alerts, and remotely locking the steering wheel. The study begins with a review of existing vehicle security measures and identifies the need for a more proactive and accessible security solution to address common vehicle theft issues. The design and development phase focuses on the selection of materials, system construction, schematic design, and programming of the Arduino-based control system. The prototype utilizes sensors for intrusion detection, a GSM module for call alerts, and an electronic steering wheel lock controlled through a smartphone application. After development, the system underwent testing and evaluation to assess its functionality, reliability, responsiveness, and overall performance. The results demonstrate that the proposed system effectively provides timely alerts and immobilization, offering a practical and user-friendly solution to improve automotive security and reduce the risk of vehicle theft.

**Keywords:** *Smart Automotive, Arduino*

\*\*\*\*\*

**Editorial Team**

**Editor-in-Chief:** Alvin B. Punongbayan

**Associate Editor:** Andro M. Bautista

**Managing Editor:** Raymart O. Basco

**Web Editor:** Nikko C. Panotes

**Manuscript Editors / Reviewers:**

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,  
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,  
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza

\*\*\*\*\*