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LASER SECURITY ALARM BEAM

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RAIZ NURIKHWAN HAZIQ BIN ABD RAZAK :.....
(IC Number: 030201-08-0375) (RAIZ NURIKHWAN)

MUHAMMAD AIDIL AIZAT BIN MOHD NASIR :.....
(IC Number: 030223-06-0543) (AIDIL AIZAT)

LINGGES A/L SUNDRAKANAPAHTI :
(IC Number: 031206-02-0309) (LINGGES)

In front of me,

PN ANEZIATUN AQMAL BINTI PUTEH AHMAD :
as Project Supervisor on date:..... (PN. ANEZIATUN AQMAL)

ACKNOWLEDGEMENT

Title: SINCERE APPRECIATION FOR PROJECT SUPERVISOR

To Ms. Aneziatun Aqmal Binti Puteh Ahmad,

With utmost respect and sincerity, we would like to express our heartfelt gratitude for the guidance and support you have provided us throughout the duration of this project. Without the invaluable assistance and advice from Ms. Aneziatun Aqmal Binti Puteh Ahmad, our achievements may not have reached this far.

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ABSTRAK

Kebelakangan ini, kes-kes rompakan kediaman di Malaysia telah meningkat. Malangnya, jenayah ini semakin menjadi-jadi dan menimbulkan kebimbangan. Sebab utama untuk isu ini adalah kerana tiada sistem keselamatan yang betul membuatkan penduduk sedar akan kehadiran pencuri. Objektif kajian adalah untuk mereka bentuk sistem untuk mencegah rompakan dan kehadiran orang luar dan penjenayah di dalam kawasan perumahan pada waktu yang tidak teratur, untuk membangunkan prototaip alat penggera keselamatan laser menggunakan teknologi IR 4.0 dan untuk menilai keberkesanan dan kebolehfungsian prototaip alat penggera keselamatan laser. Prototaip Alat Penggera Keselamatan Laser (LSAB) mewakili pendekatan yang canggih dan berkesan dalam keselamatan perimeter, menggunakan teknologi laser untuk mengesan dan bertindak balas terhadap potensi pencerobohan dengan pantas dan dapat dipercayai. LSAB mengukuhkan pertahanan terhadap pencerobohan dan membolehkan pemantauan yang lancar terhadap pergerakan masuk dan keluar rumah dari jarak jauh. Projek ini menangani keperluan segera untuk keselamatan yang dipertingkatkan dan menetapkan contoh untuk memanfaatkan teknologi secara efektif untuk menangani cabaran masyarakat. Maklum balas yang sangat positif terhadap reka bentuk yang mesra pengguna dan prestasi berbanding langkah-langkah keselamatan tradisional menonjolkan potensinya sebagai penyelesaian praktikal kepada isu kritikal keselamatan kediaman. Ciri-ciri utama seperti pengesan penceroboh secara langsung dan interaksi yang mudah dengan platform IoT sangat efektif menunjukkan bahawa prototaip ini boleh membawa era baru kepada penyelesaian keselamatan rumah pintar dan proaktif. Pembangunan LSAB merupakan pencapaian penting dalam teknologi keselamatan. Melalui usaha kolektif dalam penyelidikan yang teliti, reka bentuk yang berhati-hati serta ujian keberkesanan yang ketat, prototaip ini telah berjaya dibangunkan secara berkesan bagi mengesan pencerobohan dan melindungi kawasan yang ditetapkan. Integrasi teknologi laser menawarkan penyelesaian yang canggih dan praktikal untuk meningkatkan langkah-langkah keselamatan.

ABSTRACT

In recent years, home robbery cases in Malaysia have increased. Unfortunately, these crimes are becoming more violent and alarming. The main reason for this issue is that no proper security system makes the residents aware of the thief. The objectives of the study are to design a system to prevent robberies and the presence of outsiders and intruders inside the housing area at uneven times, to develop a prototype of the laser security alarm beam using IR 4.0 technology, and to evaluate the efficiency and the functionality of the prototype of the laser security alarm beam. The Laser Security Alarm Beam (LSAB) prototype represents an advanced and effective approach to perimeter security, employing laser technology to detect and respond to potential intrusions swiftly and reliably. The LSAB fortifies defenses against intrusions and enables seamless monitoring of movements in and out of the house from remote locations. This project addresses the immediate need for enhanced security and sets a precedent for effectively leveraging technology to tackle societal challenges. The overwhelming positive feedback on its user-friendly design and performance compared to traditional security measures highlights its potential as a practical solution to the critical issue of household security. The general enthusiasm for features like real-time intruder detection and easy interaction with IoT platforms was particularly striking, indicating that the prototype could bring a new era of smart and proactive home security solutions. The development of the LSAB represents a significant achievement in security technology. Through collective efforts in diligent research, meticulous design, and rigorous testing, it has successfully constructed a prototype that effectively detects intrusions and safeguards the designated area. The integration of laser technology offers a sophisticated yet practical solution for enhancing security measures.

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ABBREVIATION

IOT	Internet of Things
IR	Infrared
LCD	Liquid-Crystal Display
LSAB	Laser Security Alarm Beam
MERS	Malaysian Emergency Response Services
PIR	Passive Infrared
PUO	Politeknik Ungku Omar

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