

WEAPON DETECTION USING ARTIFICIAL INTELLIGENCE AND DEEP LEARNING FOR SECURITY APPLICATIONS

AIM:

Design development of Weapon detection using artificial intelligence and deep learning for security applications.

PURPOSE:

This paper presents a comprehensive study on the development and implementation of a weapon detection system for security applications using Artificial Intelligence (AI) and Deep Learning techniques. In the context of increasing security concerns in public spaces and critical infrastructures, the need for reliable and efficient weapon detection technologies has become paramount. The proposed system harnesses the power of AI and Deep Learning algorithms to automatically identify and detect weapons in real-time from images or video streams. Convolutional Neural Networks (CNNs) are employed to extract relevant features from input data, enabling the model to learn complex patterns associated with different types of weapons. The training process involves a large dataset comprising diverse weapon images, encompassing various angles, lighting conditions, and firearm types, to ensure robustness and generalization.

DESCRIPTION:

ESP32 camera and GSM (Sim800c) modules interfaced with Arduino UART port. 12v Siren enabled by relay. Relay connected to Arduino digital pin. DC motor controls sliding door and it was controlled by l293d H-bridge.

WORKING:

ESP32 camera can detect weapons like guns and grenades. This camera installed at public areas, banks,

ATMs and many more public crowded areas. This project mainly meant for indoor areas like ATMS and banks. If weapon detected by camera then door will be closed and SMS will send to authorised mobile numbers. Also siren will be ON.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino uno controller
Crystal	:	16 MHz
LCD	:	16x2 LCD display
GSM	:	SIM800C
Relay	:	12V DC electromagnetic
Siren	:	12V DC
H-bridge	:	L293D
DC motor	:	5V DC
Camera	:	ESP32 camera
Power Source	:	12v 1 amp DC battery

SOFTWARE:

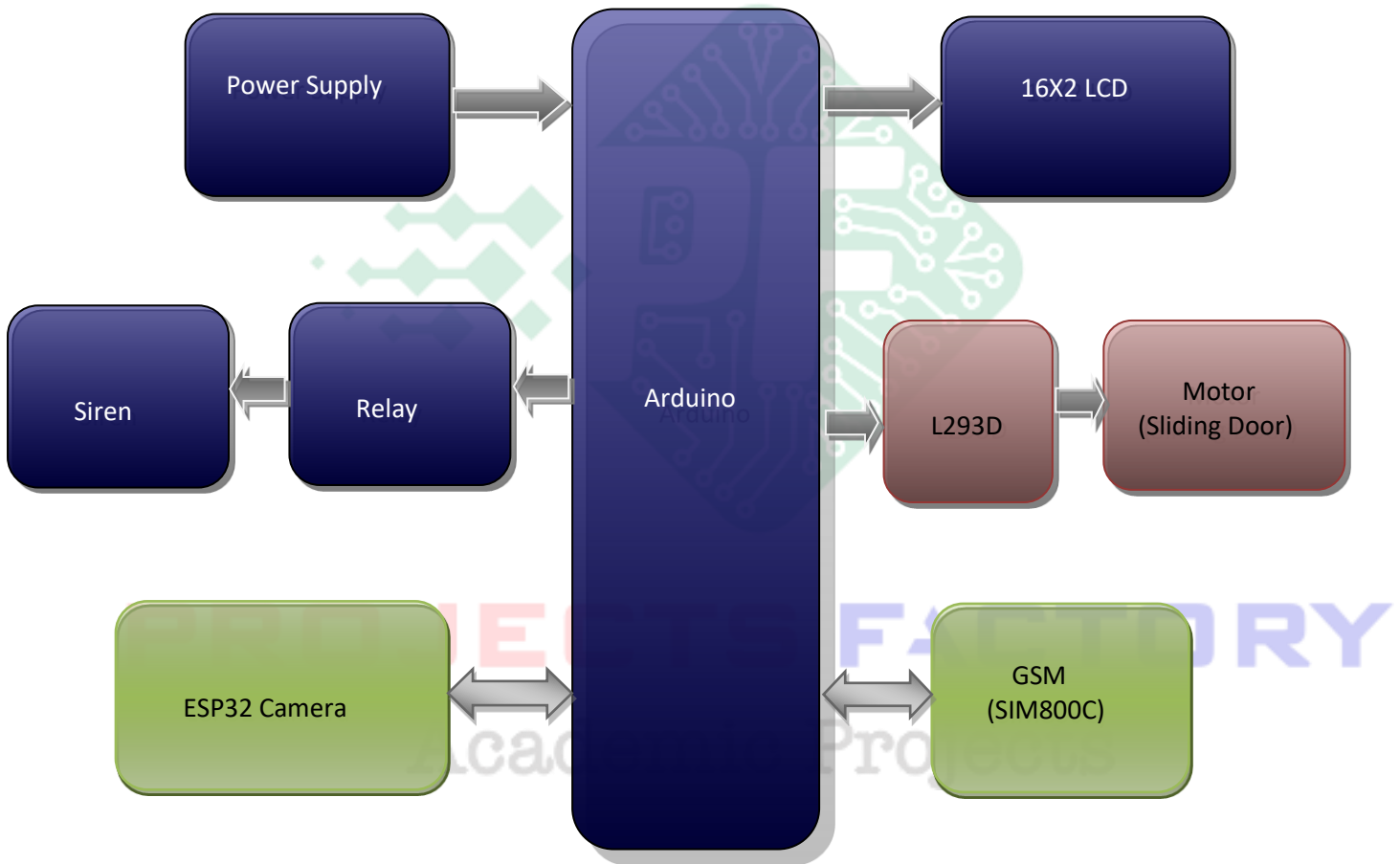
Arduino IDE

Proteus based circuit diagram

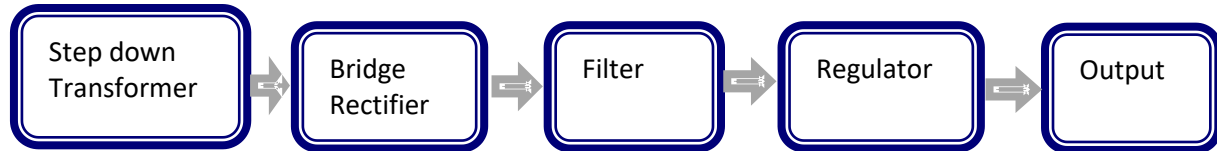
APPLICATIONS:

- Advanced weapon detection
- Vision based security system
- AI based ATM security system
- Machine learning based advanced bank security system

BLOCK DIAGRAM:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERED:

- We have covered Arduino controller programming and interface
- ESP32 cam and GSM (SIM800C) coding

PROJECTS FACTORY
Academic Projects