

3.1 SYSTEM SPECIFICATIONS

3.1.1 SOFTWARE REQUIREMENTS

- **Embedded Programming Environment:** Arduino IDE for writing and uploading microcontroller code.

3.1.2 HARDWARE REQUIREMENTS

- **PIR Motion Sensors**

- ❖ For detecting motion based on infrared radiation (used in both first and second-level detection).
 - ❖ Two levels: outer field and inner field placement.

- **Microcontroller Unit (MCU)**

- ❖ Example: **Arduino UNO, ESP8266, or Raspberry Pi**
 - ❖ Processes sensor input and triggers outputs (sound/light).

- **Speakers or Audio Module**

- ❖ Plays pre-recorded predator sounds (e.g., tiger, lion).
 - ❖ Needs support for dynamic/random playback.

- **High-Intensity Focus Lights (LED or Floodlights)**

- ❖ Used as a secondary visual deterrent.
 - ❖ Controlled via microcontroller.