**Smart Doghouse Requirements Document**

**1. Introduction**

**1.1 Purpose**

The purpose of this document is to outline the requirements for the development of a smart doghouse, equipped with air conditioning, heating, and two-way communication features.

**1.2 Scope**

The smart doghouse aims to provide a comfortable and secure environment for pets, allowing owners to remotely monitor and control the climate while facilitating communication with their pets.

**2. Functional Requirements**

**2.1 Climate Control**

* **2.1.1 Air Conditioning:**
  + The system should be capable of cooling the interior to a comfortable temperature range (e.g., 18-25°C).
  + Users should have the ability to set temperature preferences through a mobile application.
* **2.1.2 Heating:**
  + The system should be capable of providing warmth during colder temperatures.
  + Users should have the ability to set temperature preferences through a mobile application.

**2.2 Two-Way Communication**

* **2.2.1 Audio Communication:**
  + The doghouse should include a two-way audio communication system.
  + Users should be able to talk to their pets remotely through a mobile application.
* **2.2.2 Video Monitoring:**
  + The system should include a camera for video monitoring of the interior.
  + Users should be able to view live video feeds through a mobile application.
* **2.2.3. Bark Monitoring**
  + The system should include a noise monitor capable of measuring 60 db to 115 db @500 Hz.
  + Users should be able to set bark monitor settings to include a bark timer.

**3. Non-Functional Requirements**

**3.1 Performance**

* The climate control system should respond to user commands within a maximum latency of 5 seconds.

**3.2 Security**

* Communication between the mobile application and the dog house should be encrypted to ensure data privacy.

**3.3 Reliability**

* The system should have a backup power source to ensure continuous operation during power outages.

**4. User Interface Requirements**

**4.1 Mobile Application**

* The mobile application should have an intuitive user interface for setting temperature preferences and accessing audio/video feeds.

**5. Design Constraints**

**5.1 Size and Dimensions**

* The smart doghouse should be designed to accommodate dogs of various sizes, with a focus on safety and comfort.

**6. Approval**

This document is subject to approval by:

Chief Barking Officer

Dog Loving Engineering Manager

Executive VP of Love Your Dog