Kapek Design
Product Design Specification
Date:

Project Name **Client Name**

PRODUCT DESIGN SPECIFICATION - Product Name

This PRODUCT DESIGN SPECIFICATION is a statement of what this product is intended to do. The aim of this document is to ensure that the subsequent design and development of the product meets the requirements of the client.

Background

Introduction

—Please describe the product briefly here—

Basic Operation

—Please describe the basic operation briefly here—

Scope

This specification covers the general operation characteristics of the product and provides an overview of the requirements for the electronics of the finished article. This is a response to the criteria laid out by the client.

Product Design and Performance

1.0 Operation

1.1 The device activates an blue light when the user presses a button.
1.2 The device deactivates this light when the user shakes the device.
1.3 The device device operates a watch..
1.4 The device operates as a pedometer.
1.6 The device cycles through different operation modes via user buttons.
1.7 The device user rechargeable.
1.8 Both devices indicate low battery to a user.
1.9 The device emits a 500Hz tone when it detects moisture.
1.10 The device vibrates when in darkness.

2.0 Dimensions

2.1 The main face of the device is a rectangle with maximum dimensions of 40mm x 50mm, and a depth no more than 15mm.
2.2 The device can be mounted onto a car dashboard via a separate mount.

2.3 The device can be mounted onto cycle handlebars via a separate mount.

2.4 The weight of the device is not to exceed 150g.

3.0 Power Considerations

3.1 The device are to have a working[1] battery life of at least 5 hours.

3.2 The device are to have a standby[2] battery life of at least 30 hours.

3.3 The device have a hibernation[3] battery life of at least 100 hours.

3.3 The device are to chargeable via USB.

3.4 The device is to charge fully in no more than 5 hours.

4.0 Aesthetics

4.1 The device must resemble a standard handheld torch.

5.0 User Interface

5.1 The device provides basic user interface via buttons and simple digital displays.

6.0 Lifetime

6.1 The device is to have a lifetime of at least 2 years.

Operation Environment and Safety

7.0 General Operation Environment

7.1 The device is to be used in domestic environments.

7.2 The device is to have a protection rating of IP55, limited protection against dust ingress and protection against low pressure water jets.

8.0 Use

8.1 The device will not be subject to any substantial mechanical shock under normal operation.

8.2 The device is to withstand continued wear.

9.0 Usage Hazards

9.1 The device must operate reliably whilst in use in a car.

9.3 The device must not require any significant user input during use.

Maintenance and Recycling

10.0 Expected Maintenance

10.1 The device requires no expected maintenance other than charging or cleaning.

10.2 The device is not designed to be repaired in the event of failure.

11.0 Recycling

11.1 The device is to be recycled in accordance with the WEEE Directive.

Manufacturing

12.0 Manufacture Methods

12.1 Standard manufacture methods are to be applied, including, but not limited to:

12.1.1 PCB manufacture

12.1.2 PCB reflow

12.1.3 Plastics moulding methods

12.2 Prototyping methods to be applied are:

12.2.1 Manual PCB manufacture

12.2.2 Manual PCB component placement

12.2.3 PCB Hot Oven reflow

12.2.4 3D printing

13.0 Volume

13.1 The expected volume of the prototype batch is between 20 to 50 units.

13.1 The expected volume of first batch is at least 5000 units.

Markets and Costs

14.0 Target Cost

14.1 The target OEM cost for the device is 10 GBP.

14.2 The target RRP cost for the product is 80 GBP.

15.0 Sales Locations

15.1 The sales locations are UK, EU and US.

16.0 Market

16.1 The general market for this product is consumers.

16.2 This product will be sold online and in physical shops.

Certifications

17.0 Mandatory Standards

17.1 Electromagnetic compatibility (EMC) Directive 2014/30/EU.

17.2 Restriction of Hazardous Substances 2 (RoHS 2) Directive 2011/65/EU.

17.3 Waste Electrical and Electronic Equipment Directive (WEEE) 2012/2019/EU.

17.4 Compliance with with part 15 of the FCC Rules.

18.0 Optional Standards

18.1 Safety requirements for portable sealed secondary lithium cells IEC 62133-2:2017.

Definition of terms

1 - Working: Torch function, watch display, movement sensing.

2 - Standby: Watch display, movement sensing.

3 - Hibernation: Movement sensing.