

**NATIONAL UNIVERSITY HO CHI MINH CITY  
HO CHI MINH UNIVERSITY OF TECHNOLOGY**

**Faculty of Electrical and Electronics Engineering**



## **PRODUCT REQUIREMENTS DOCUMENT**

# **IR REMOTE CONTROL**

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Class: TT01

Group: 16

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## Overview

<b>Internal Name</b>	IR Remote control
<b>External Name</b>	IRC
<b>MSRP (Solo)</b>	\$20 to \$100, VND 400,000-VND 2,000,000
<b>Channel</b>	Online Only
<b>Launch Target</b>	2024

An infrared (IR) remote control project typically involves designing and building a device capable of sending and receiving IR signals to control various electronic appliances remotely. IR remote controls simplify the operation of electronic devices from a distance, such as TVs, home entertainment systems, appliances, lighting, and even car audio systems. They offer convenience and accessibility, enhancing user experience in various settings.

## Priority Description

**P0:** Must Have Requirement i.e. Product will not launch without it

**P1:** Not a requirement for launch but is needed 3-6 months post-launch

## Product Requirements

### I. Industrial Design

#	Feature/Characteristic	Product Requirements	Priority	Technical/Engineering Specifications	Comments
I.1	Compatibility	Ensure compatibility with a wide range of electronic devices	P0		
I.2	Button Layout	Design an intuitive button layout for easy navigation and operation.	P0		
I.3	Ergonomics	Comfortable handling and ease of use over prolonged periods.	P0		
I.4	Button	Allow to charge the	P0		
I.5	Programming Capability	Offer the ability to program custom functions or macros for advanced users	P1		
I.6	Branding	Logos should be tastefully integrated into the design without detracting from	P0		

		the overall aesthetic appeal			
I.7	Placement	Small and convinient, can be carried esially	P0		
I.8	User Interface	LCD displays to enhance user experience and provide feedback	P0		

## II. Display Screen

#	Feature/Characteristic	Product Requirements	Priority	Technical/Engineering Specifications	Comments
II.1	LCD or OLED Display	Utilize a low-power LCD or OLED display to provide visual feedback to the user	P0		
II.2	Menu Navigation	Design a menu system that is displayed on the screen, allowing users to navigate through different functions and settings easily. This could include options for controlling various devices, setting up macros, or adjusting settings.	P0		
II.3	Feedback and Confirmation	Use the display to provide feedback and confirmation when buttons are pressed, ensuring that the user's	P0		

		commands are registered correctly.			
II.4	Status Indicators	Display status indicators on the screen to alert users to important information, such as low battery levels or connectivity issues.	P1		
II.5	Integration with Device Information	Integrate the display with device information databases to provide additional context or details about the devices being controlled, such as channel listings for TVs or track information for audio systems.	P1		

### III. Connectivity

#	Feature/Characteristic	Product Requirements	Priority	Technical/Engineering Specifications	Comments
III.1	Infrared (IR) Communication	The primary method of connectivity for an IR remote control is through infrared signals. The remote control emits IR signals that are received by IR receivers on the target devices, allowing for wireless control.	P0		

III.2	Range	The range is sufficient to cover the desired distance between the user and the target devices	P0		
III.3	Interference	Minimize potential sources of interference that could affect IR communication, such as other IR devices or sunlight.	P1		
III.4	Signal Strength	The strength of the IR signals emitted by the remote control can affect connectivity. Ensure that the signals are strong enough to reliably control the target devices without interference or dropout.	P0		

#### IV. Power

#	Feature/Characteristic	Product Requirements	Priority	Technical/Engineering Specifications	Comments
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IV.1	Power	Using disposable batteries (e.g., AAA, AA) or rechargeable batteries	P0		
IV.2	Battery Life	Optimize power consumption to maximize battery life and minimize the frequency of battery replacements or recharging...)	P1		
IV.3	Backup Power	Should have secondary batteries or capacitors, to retain settings or memory during battery replacement or power interruptions	P1		

#### IV. Durability

#	Feature/Characteristic	Product Requirements	Priority	Technical/Engineering Specifications	Comments
V.1	Material	High-quality, durable materials for the construction of the remote control, such as ABS plastic or aluminum alloy	P0		

V.2	Weather Resistant	The device is designed to function reliably in wireless mode with an IPX6 rating. Operation under higher ratings has not been tested yet.	P0		
V.2	Drop Test	Our remote control boasts buttons and switches designed for a minimum of 10,000 press cycles, promising longevity and reliability under frequent use.	P0		
V.3	Impact Resistance	Our remote control can endure impact from accidental drops of up to 1 meter onto hard surfaces, maintaining its functionality and integrity.	P0		
V.4	Temperature Range	Ranging from -10°C to 50°C, our remote control consistently delivers reliable performance, regardless of environmental conditions	P0		



V.5	Humidity Tolerance	Designed to withstand humidity levels of up to 90% RH	P1		
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## V. Packaging

#	Feature/Characteristic	Product Requirements	Priority	Technical/Engineering Specifications	Comments
VI.1	Material	Crafted from durable and eco-friendly materials, such as recyclable cardboard or biodegradable plastics	P0		
VI.2	Branding	Design incorporates the brand identity and product messaging cohesively, utilizing vibrant colors, clear imagery, and concise text to communicate the product's features and benefits effectively.	P0		
VI.3	Sustainability Commitment	Ustainability goals, our packaging is fully recyclable or biodegradable	P0		

VI.4	Multi-Lingual Support	Including Vietnamese language and imported countries's language	P0		
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#### **VI. Out of Box Experience (OOBE)**

#	Feature/Characteristic	Product Requirements	Priority	Technical/Engineering Specifications	Comments
VII.1	First Impressions	The packaging is designed to make a strong first impression, with eye-catching branding, vibrant colors	P0		
VII.2	Easy Access:	Easy-to-access arrangement that allows them to retrieve the remote control effortlessly, minimizing frustration	P0		