

# PROJECT PROPOSAL

## Smart Retrieval Autonomous Car

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# Project Overview



We propose the creation of a Smart Retrieval Autonomous Car designed for swift item retrieval within designated areas. This cutting-edge vehicle integrates features like wireless WiFi remote control, a mobile camera for visual identification, and robust components to ensure superior performance.

The primary goal is to develop an adaptable autonomous car with the ability to autonomously identify and retrieve items guided by remote visual commands. This innovative solution aims to streamline the retrieval process, offering a reliable and efficient method for locating and recovering specific items.

The Smart Retrieval Autonomous Car, equipped with advanced technologies like WiFi connectivity and visual recognition features, emerges as a versatile tool capable of catering to a range of applications. Through the integration of robust components, the autonomous car demonstrates resilience during operations, rendering it suitable for varied environments. This initiative resonates with our goal of developing an intuitive and efficient robotic system, providing a valuable solution for tasks necessitating accurate item identification and retrieval within specified areas.



# Components



- **Wireless WiFi Remote Control**

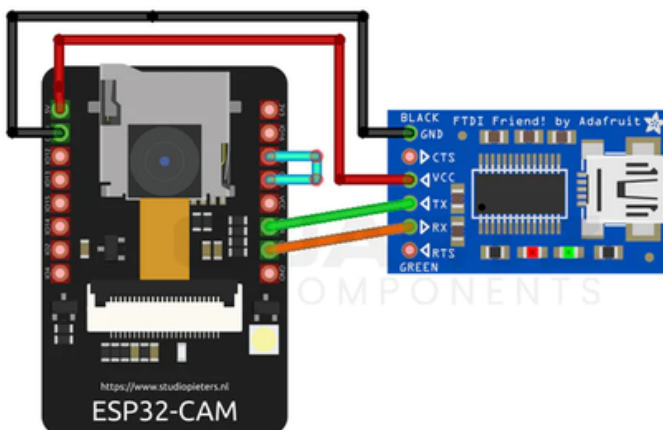
The Esp32 cam Car is equipped with wireless WiFi remote control, providing users with seamless navigation and control capabilities within a designated area. This feature enhances the robot's versatility, making it suitable for a wide range of applications, from surveillance and monitoring to search and rescue missions.

- **Mobile Camera**

Leveraging the power of the Esp32 cam, the robot incorporates a high-resolution mobile camera for visual recognition of target items. This capability opens up a myriad of possibilities, including remote inspection, security surveillance, and inventory management.

- **High Strength**

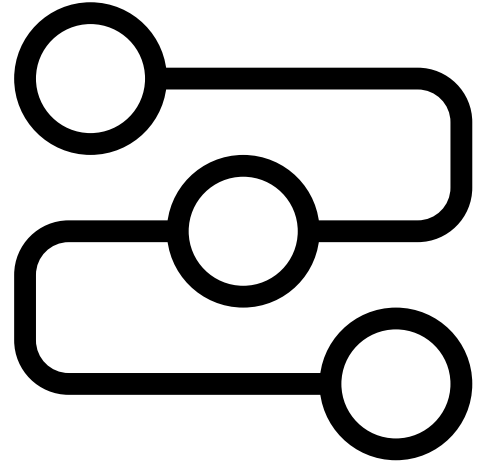
Featuring a sturdy material bracket and high-quality wheels, the Esp32 cam Car ensures durability and stability during operation. This design feature positions the robot for various practical applications, such as outdoor exploration, industrial automation, and even entertainment events where a reliable and sturdy robot is essential.



## Technical specifications

- Working voltage: 5v
- Input voltage : 7-12V
- Maximum output current : 2A
- Maximum power consumption : 2.5 W
- Motor speed : 5v 200rpm/min
- Motor drive mode : 12V 620 rpm Geared motor
- WiFi remote control distance : LAN coverage

# Workflow



## > Visual Recognition

The robot's mobile camera will analyze the provided images to identify the target item based on pre-programmed algorithms

## > Navigation

The robot will autonomously navigate the specified zone, searching for the identified item using its visual recognition capabilities.

## > Item Retrieval

Upon locating the target item, the robot will utilize a magnet to securely attach to and retrieve the item

## > Return to Starting Point

Return to Starting Point: The robot will navigate back to the starting point, ensuring the successful retrieval of the item.

## > Item Identification

Users will send visual cues or images of the desired item to the robot through a user interface (UI).

# Product Flow

## **01 User Enters the UI**

User initiates the process by entering the user interface (UI), accessing the various functionalities provided for item retrieval.

## **02 Item Selection**

The user has the option to either choose an existing item from a predefined list or upload a new photo of the item to be recognized. This step ensures flexibility for users with different retrieval needs.

## **03 Destination Selection**

After selecting the item, the user specifies the destination or a location where the item should be delivered. This step allows for personalized and targeted retrieval missions.

## **04 Operation Launch**

Upon completing the necessary selections, the user launches the operation. The Smart Retrieval Car, equipped with the chosen item's visual characteristics, starts its mission to locate and retrieve the specified item.

# Product Flow

## **05 Item Retrieval**

The car employs its visual recognition capabilities to identify and locate the target item within the designated zone. Once found, the robot utilizes a magnet to securely attach the item to its back.

## **06 Autonomous Return**

After successfully attaching the item, the car autonomously navigates back to its starting place, employing obstacle avoidance mechanisms to ensure a smooth and safe return journey.

## **07 User Confirmation**

Upon the car's return, the user confirms the successful retrieval of the item. The UI is notified of the mission's accomplishment, providing real-time feedback to the user.

## **08 Ready for Another Mission**

The Smart Retrieval Car, having completed the mission, is now ready for another task. The user can initiate a new retrieval mission, repeating the process for efficient and versatile item retrieval.