

AutoChef: Computer Vision for Automated Ingredient-to-Recipe Matching

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Value Proposition

Current problem

With leftover groceries, users experience friction in **1) identifying leftovers in their fridge**, and **2) finding suitable recipes**.



Key objectives

Users would like a one-stop-shop for their leftover cooking needs and recipe recommendations.

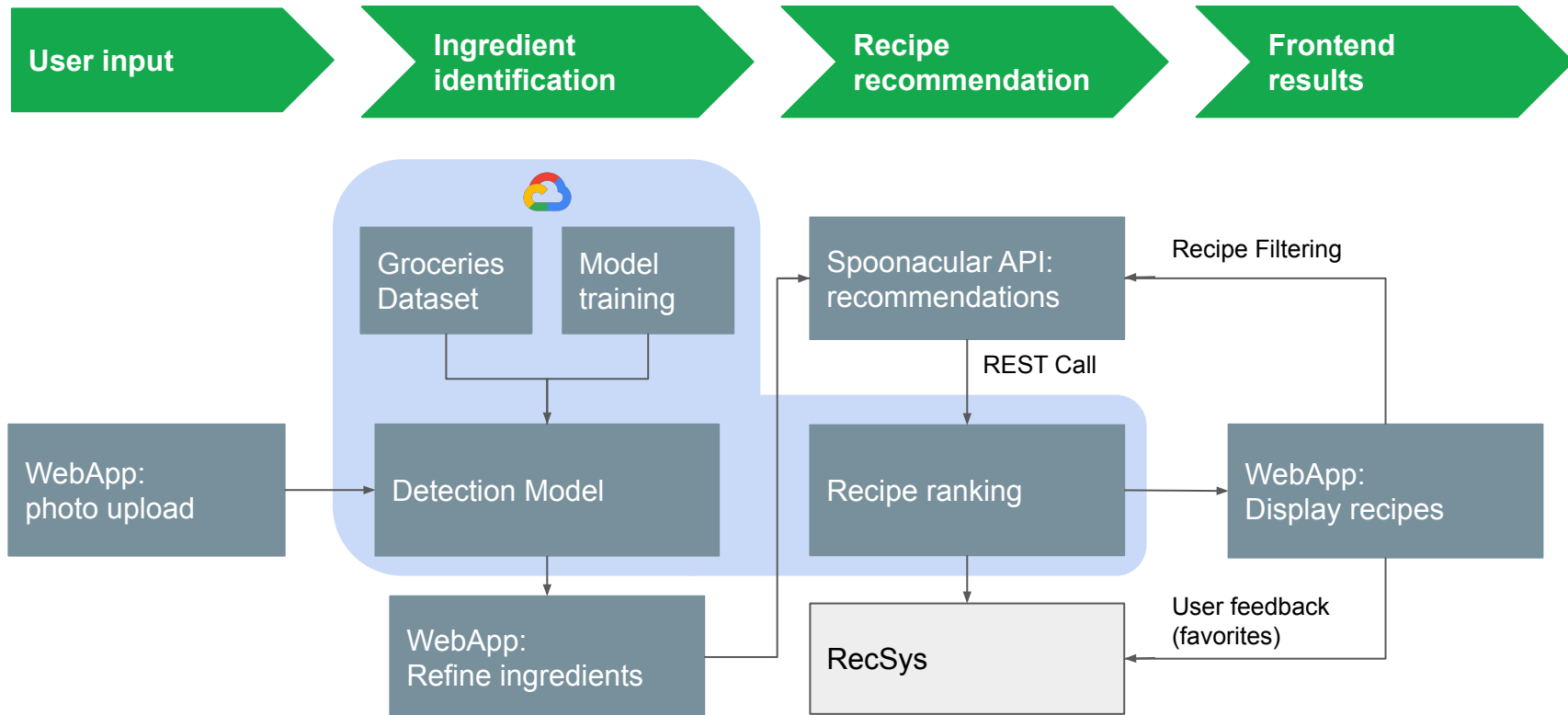


Our proposed solution

AutoChef: A web application which automatically identifies ingredients with a single photo, and recommends recipes maximizing use of leftovers and tailoring to the user's preferences.

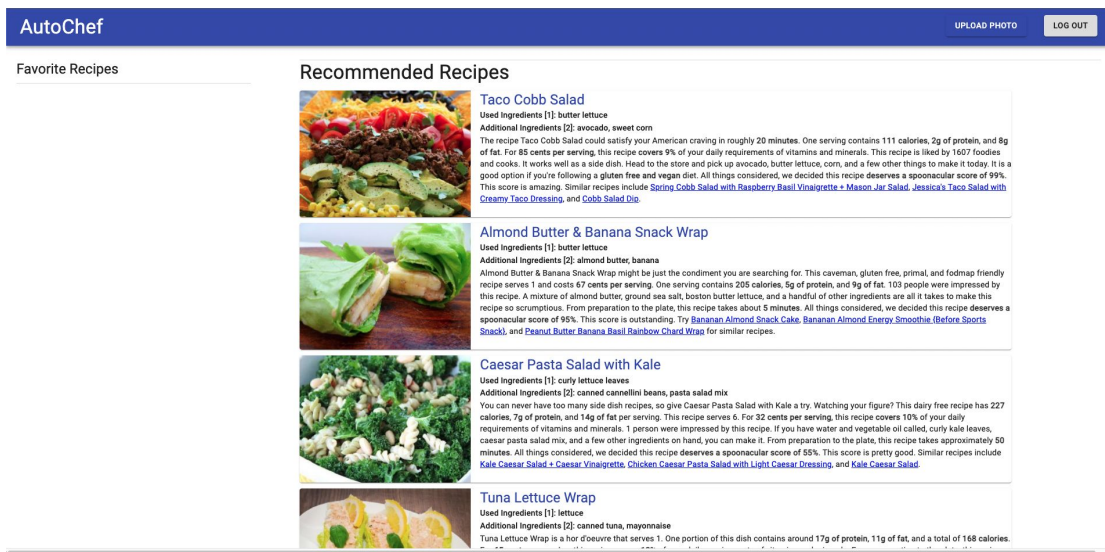
System Layout

- Current components
- Future components



Initial iteration (MVP)

- ❖ Single ingredient detection only
- ❖ Cannot filter recipes beyond ingredient selection
- ❖ Lacks detailed recipe instructions



The screenshot shows the AutoChef website interface. At the top, there is a blue navigation bar with the "AutoChef" logo on the left, and "UPLOAD PHOTO" and "LOG OUT" buttons on the right. Below the navigation bar, the page is divided into two main sections: "Favorite Recipes" on the left and "Recommended Recipes" on the right. The "Recommended Recipes" section displays three recipe cards, each with a food image, a title, and a list of ingredients. The first card is for "Taco Cobb Salad", the second is for "Almond Butter & Banana Snack Wrap", and the third is for "Caesar Pasta Salad with Kale". Each card also includes a brief description and a spoonacular score.

AutoChef UPLOAD PHOTO LOG OUT

Favorite Recipes

Recommended Recipes

Taco Cobb Salad
Used Ingredients [1]: butter lettuce
Additional Ingredients [2]: avocado, sweet corn
The recipe Taco Cobb Salad could satisfy your American craving in roughly 20 minutes. One serving contains 111 calories, 2g of protein, and 8g of fat. For 85 cents per serving, this recipe covers 9% of your daily requirements of vitamins and minerals. This recipe is liked by 1607 foodies and cooks. It works well as a side dish. Head to the store and pick up avocado, butter lettuce, corn, and a few other things to make it today. It is a good option if you're following a gluten free and vegan diet. All things considered, we decided this recipe deserves a spoonacular score of 99%. This score is amazing. Similar recipes include [Saring Cobb Salad with Raspberry Basil Vinaigrette + Mason Jar Salad](#), [Jessica's Taco Salad with Creamy Taco Dressing](#), and [Cobb Salad Dip](#).

Almond Butter & Banana Snack Wrap
Used Ingredients [1]: butter lettuce
Additional Ingredients [2]: almond butter, banana
Almond Butter & Banana Snack Wrap might be just the condiment you are searching for. This caveman, gluten free, primal, and fodmap friendly recipe serves 1 and costs 67 cents per serving. One serving contains 205 calories, 5g of protein, and 9g of fat. 103 people were impressed by this recipe. A mixture of almond butter, ground sea salt, boston butter lettuce, and a handful of other ingredients are all it takes to make this recipe so scrumptious. From preparation to the plate, this recipe takes about 5 minutes. All things considered, we decided this recipe deserves a spoonacular score of 95%. This score is outstanding. Try [Bananan Almond Snack Cake](#), [Bananan Almond Energy Smoothie \(Before Sports Snack\)](#), and [Peanut Butter, Banana Basil Rainbow Chard Wrap](#) for similar recipes.

Caesar Pasta Salad with Kale
Used Ingredients [1]: curly lettuce leaves
Additional Ingredients [2]: canned cannellini beans, pasta salad mix
You can never have too many side dish recipes, so give Caesar Pasta Salad with Kale a try. Watching your figure? This dairy free recipe has 227 calories, 7g of protein, and 14g of fat per serving. This recipe serves 6. For 32 cents per serving, this recipe covers 10% of your daily requirements of vitamins and minerals. 1 person were impressed by this recipe. If you have water and vegetable oil called, curly kale leaves, caesar pasta salad mix, and a few other ingredients on hand, you can make it. From preparation to the plate, this recipe takes approximately 50 minutes. All things considered, we decided this recipe deserves a spoonacular score of 85%. This score is pretty good. Similar recipes include [Kale Caesar Salad + Caesar Vinaigrette](#), [Chicken Caesar Pasta Salad with Light Caesar Dressing](#), and [Kale Caesar Salad](#).

Tuna Lettuce Wrap
Used Ingredients [1]: lettuce
Additional Ingredients [2]: canned tuna, mayonnaise
Tuna Lettuce Wrap is a hor d'oeuvre that serves 1. One portion of this dish contains around 17g of protein, 11g of fat, and a total of 168 calories.

Current iteration

- ❖ Allows for multiple ingredient detection in a single image
- ❖ Enables recipe filtering based on:
 - Cuisine (i.e. American, Thai, Japanese, French)
 - Dietary restrictions (i.e. vegetarian, vegan)
 - Specific intolerances (i.e. dairy, egg, seafood)
 - Type of dish (i.e. main course, appetizer, dessert)
- ❖ Supports detailed recipe instructions

AutoChef

UPLOAD PHOTO LOG OUT

Favorite Recipes

Wedge Salad Burgers

Filter Options

Cuisines
American

Diets
Gluten Free

Intolerances
Seafood

Meal Types
salad

FILTER

Recommended Recipes

Wedge Salad Burgers

Used Ingredients [1]: iceberg lettuce
Additional Ingredients [4]: 85 percent ground beef, bacon, blue cheese dressing, red onion
The recipe Wedge Salad Burgers could satisfy your American craving in around 25 minutes. This recipe makes 2 servings with 368 calories, 38g of protein, and 18g of fat each. For \$4.12 per serving, this recipe covers 31% of your daily requirements of vitamins and minerals. A couple people really liked this main course. Head to the store and pick up onion, bacon, iceberg lettuce, and a few other things to make it today. To use up the kosher salt you could follow this main course with the [Low Fat Crumbs Cake \(Kosher-Dairy\)](#) as a dessert. 31 person have tried and liked this recipe. It is a good option if you're following a caveman, gluten free, and primal diet. All things considered, we decided this recipe deserves a spoonacular score of 87%. This score is excellent. Try [Classic Blue Cheese Wedge Salad and Dole Salad Farm Tour](#), [Wedge Salad](#), and [Wedge Salad](#) for similar recipes.

Loaded Caesar Salad (and the Eat. Live. Be. Reboot)

Used Ingredients [1]: lettuce
Additional Ingredients [5]: bacon, caesar dressing, edamame, hard-boiled egg, romano cheese
The recipe Loaded Caesar Salad (and the Eat. Live. Be. Reboot) could satisfy your American craving in around 45 minutes. One serving contains 495 calories, 25g of protein, and 40g of fat. This gluten free and ketogenic recipe serves 1 and costs \$2.16 per serving. This recipe is liked by 30 foodies and cooks. A few people really liked this main course. If you have hard-boiled egg, romano cheese, baby lettuce, and a few other ingredients on hand, you can make it. To use up the bacon you could follow this main course with the [Blueberry Buckle](#) as a dessert. All things considered, we decided this recipe deserves a spoonacular score of 60%. This score is solid. Try [Baked Ginger Sesame Chicken and Broccoli \(and Eat. Live. Be. Reboot\)](#), [Chicken Caesar Salad with Garlic Croutons \(and Light Caesar Dressing\)](#), and [Grilled Caesar Salad with Light Caesar](#)

Live Demo

Code: <https://github.com/sharanramjee/AutoChef>