

# **Term Project Report**

**Course:** Artificial Intelligence

**Course Code:** CSE 4618

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## **Cooking Bot Problem**

### **Scenario:**

With an initial state, the goal of a bot is to cook meals, drinks and dessert under restrictions. He will also need to know how to solve problem if a certain type of dish needs to be made. To get the ingredients, he will have to buy them from 4 different shops, which each provide specific ingredients. The bot has a battery charge. Doing all these actions will decrease his charge. The bot's job is to prepare the food using necessary materials and ingredients and place on different plates whilst maintaining minimum loss of charge. He will be very charge-cost efficient

### **Problem Description:**

The bot will make 3 types of food :- **Meal, Dessert and Drinks**

It will buy **Spices, Fruits, Vegetables** and **Protein** from 4 different shops selling these products.

With the use of **cooker, juicer, oven** and **bowls** the bot will prepare the said type of food using the required ingredients, using the necessary materials and put them on a **plate/glass**. While doing all these actions, his battery-charge will be decreased. The bot will find an efficient way to carry out these tasks while maintaining maximum charge in such a way that he will lose very low charge

### **Actions:**

- **go\_shopping:**

In this action it takes 3 parameters robot and the 2 distinct locations , where the robot is currently and where it wants to go. And in this action it tries to maximize its charge cost.

- **buy\_fruits:**

In this action it takes 7 parameters in total and 4 types of parameters. first it takes a robot parameter which robot should be moved and then it takes the location of the shop and then it takes the parameter of the storage left in the robot and the demand of the fruit and which fruit. So, as for location it'll take

fruitShop as in this action the robot buys fruit. In effect the robot buys fruit by lowering the demand by one and by this every time the storage is lowered by one. After demands met the robot will go to the next shop. We have 2 types of fruits so it buys 2 types of different fruits and moves to the next location.

- **buy\_vegetables:**

In this action it takes 7 parameters in total and 4 types of parameters. first it takes robot parameter which robot should be moved and then it takes the location of the shop and then it takes the parameter of the storage left in robot and the demand of the vegetable and which vegetable. So, as for location it'll take vegShop as in this action the robot buys vegetables. In effect the robot buys vegetables by lowering the demand and storage by one. after demand's met the robot will go to next shop. We have 2 types of vegetables so it buys 2 types of different vegetables and moves to next location.

- **buy\_protien:**

In this action it takes 7 parameters in total and 4 types of parameters. first it takes robot parameter which robot should be moved and then it takes the location of the shop and then it takes the parameter of the storage left in robot and the demand of the protien and which protien. So, as for location it'll take protienShop as in this action the robot buys protien. In effect the robot buys protien by lowering the demand by one and by this every time the storage is lowered by one. after demand's met the robot will go to next shop. We have 2 types of protien so it buys 2 types of different protien and moves to next location

- **buy\_spice:**

In this action it takes 7 parameters in total and 4 types of parameters. first it takes robot parameter which robot should be moved and then it takes the location of the shop and then it takes the parameter of the storage left in robot and the demand of the spice and which spice. So, as for location it'll take spiceShop as in this action the robot buys spice. In effect the robot buys spice by lowering the demand by one and by this every time the storage is lowered by one. after demand's met the robot will go to next shop. We have 2 types of spice so it buys 2 types of different spice and moves to next location.

- **prepare\_meal:** After completing the action go\_shopping, bot will prepare meal using meal\_ingredients (protein, vegetables, spice).

- **baking\_dessert:**

After completing the action go\_shopping, bot will bake dessert using baking\_ingredients (sugar, chocolate, flour).

- **making\_juice:**

After completing the action go\_shopping, bot will make juice using meal\_ingredients (fruits, juice, water).

- **empty-storage:**

This action takes 4 parameters 3 types of parameters. in this function the robot comes back to home and unload every foods and maximize it's storage

## **Futurescope:**

1. The bot will be able to cook with more ingredients
2. The bot will be more efficient with cost in saving time, money and preparing a meal using minimum ingredients
3. The bot can manage more capacity, bot can load the foods and come back , unload and again go shopping.