Robot Navigation Challenge

You're planning a party, but you need some avocados to make your signature guacamole. Fortunately, you have a robot that can go retrieve the avocados for you. Your goal is to write a program that will navigate a robot through a 2D maze to retrieve a set of avocados at various locations in the shortest amount of time.

Your input will be a text file representing the 2D map, where:

- "#" = obstacles
- "." = open path
- "@" = avocado
- "x" = starting location

Your output should be a text file, where:

- The first line is the minimum number of grid moves the robot must make
- Each following line is a coordinate: [row, col], sorted from first avocado location to the last

Assumptions:

- The robot can only move in four directions: up, down, left, and right
- The robot does not need to return to the initial starting location
- The robot moves at constant speed, so each grid move requires the same amount of time
- The robot can revisit the same grid point, and the avocado can be picked up during any of the visits

A test input and output file has been provided for you to verify your solution. Your submission will also be evaluated on other test cases as well.

The goal of this challenge is for us to get an understanding of how you would code in a work environment. Be conscious of design, commenting, and basic testing. This challenge is designed to be completed in 3-5 hours, do not spend more time than this for the sake of your own time. You may use whatever languages and frameworks you believe are useful for this challenge. You may use online resources to look up algorithms and syntax, but you may not copy someone else's solution. Please do not share any information about this test with anyone before, during, or after the test. Once you have completed the challenge, please email a zip file containing all code files and output files to the person who you have been corresponding with, as well as the amount of time you spent on the test. Good luck!