Informatics 2D Coursework 2 Report

1. (5 marks) Task 2.1 Design

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| *My harder problem included a second instance of mineBot. This expanded the search tree by introducing another value to consider for each action involving the mineBot, thereby increasing runtime and making the problem “harder”.* |

1. (10 marks) Task 2.2 Evaluation

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| *It was found that as the ratio of g to h decreases, the runtime of the search would increase. This is because low values of g are* |

1. (25 marks) Task 3.4 Your Extension

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| *Another realistic factor of the mine world would be the fuel capacity of the hammer. In real life a mine bot would most likely use a battery powered drill as opposed to a hammer and it would be realistic for this drill do lose power as it is used, similarly to the way in which mineBot loses energy upon movement. Again, like the mineBot, the hammer can be recharged upon visiting the energy station. This would increase the complexity of the plan as a working hammer is necessary to break ores thereby vital to the bot achieving its goal.*  *This factor was implemented using a `fuel` function which exists for each hammer and decreases by 1 upon each instance of break. An action `RECHARGE` was implemented, it takes the tile, energy-station, bot an hammer as parameters. If the bot is holding the hammer and on the estation tile, the hammer’s fuel is increased to 2.* |