Summary - Pig Chase Challenge

This summary tries to provide an overview over the approach used by our team in order to solve the pig chase challenge that was proposed. To achieve such goal, we present an iteration of the typical deliberation, decision and planning cycle.

To structure this approach, we developed all of the approach over a classical BDI architecture.

Since the challenge presents itself with a fully observable environment, the Internal state of the agent needs only to be concerned about what the opponent intends to do. For This reason, our agent store a belief that represents how much trust it hás that the opponent will cooperate on catching the pig.

With that said, we now provide an illustrative deliberation and planning step.

Belief Update:

1. Based on opponent's previous position, compute the three optimal policies to go to both doors and a pig adjacent position
2. Based on opponent's last action, compute the conditional likelihood of it belonging to each of the policies
3. Increment the belief if the maximum likelihood respects to the pig adjacent position policy
4. Decrement the belief if the maximum likelihood respects to a go to one of the doors policy
5. Keep the belief otherwise.
6. Decide intention Based on the belief
7. Plan the optimal path to the intended position using A-star search
8. Execute the first action of such plan

We must note that this document provides a very summarized view over the approach. To fully understand the approach the reader can take a look at the report that is provided with the code.