The GIVE-1 Austin System

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The UT system is based on the step-by-step system provided in the GIVE challenge material. While the step-by-step system provided accurate instruction on how to achieve the goal, the delivery of the instructions were often irritating. Every instruction encodes exactly one step of the plan and feedback is given after every user action. This resulted in the user being constantly bombarded by instructions. Our main contribution is streamlining the deliveries and minimizing the number of instructions given.

We first used the provided planner to find a plan that will reach the goal. We then pruned all the steps that involved navigations. The reason for this is because the planner does not always find the best route since its only constraints were to find a route the works. We substitute our own path planner for generating plans to get from one position to another. Our path planner uses A* search to find a path that minimizes both moving and turning (they are weighed equally). When generating instructions, instead of generating one instruction per movement, we generated one instruction for each consecutive sequence of movements. For example, if the plan requires the user moving forward three steps, the step-by-step system would have generated three instructions, each asking the user to move forward once. Instead, our system generates only one instruction, asking the user to move forward three times. Similarly, asking the user to turn twice in the same direction becomes only one instruction that asks the user to turn around.

While minimizing the number of instructions is generally a good thing, we also wanted to avoid scenarios where too much time passes between each instruction. A prolonged period of silence might make the user feel less engaged or unsure whether they are on the right path. Thus, we also have a timer that sends an instruction if the user has not moved for a certain amount of time. Other minor modifications we made to the step-by-step system includes adding more varied responses to avoid being too repetitive.