Design and develop an application simulating a bike driving on a 7 x 7 grid.

The bike is free to move around the grid but must be prevented from exiting the grid.
Any movement that would cause the bike to leave the grid must be prevented,
however further valid movement must still be allowed.

The following commands must be supported by the application:

1. PLACE <X>,<Y>,<Facing-direction>
2. FORWARD
3. TURN_LEFT
4. TURN_RIGHT
5. GPS_REPORT

- PLACE will put the bike at position (X,Y) facing NORTH, SOUTH, EAST or WEST, where (0,0) is the south-west corner.
- The application should discard all commands until a valid PLACE command has been executed. The application should also ignore all invalid commands.
- After the initial PLACE command any sequence of commands may be issued (and in any order) including another PLACE command.
- FORWARD will move the bike one unit forward in the direction it is currently facing.
- TURN_LEFT and TURN_RIGHT will rotate the bike in the specified direction without changing its position on the grid.
- GPS_REPORT will output the bike's position and facing in the following format:
  (<X>, <Y>), <Facing-direction>

The bike must not exit the grid during movement. This includes the PLACE command.
Any move that would cause the bike to leave the grid must be ignored.

Input for the bike can be from a file or STDIN.

Examples:

1. Input
   PLACE 0,5,NORTH
   FORWARD
   GPS_REPORT

   Output: (0,6), NORTH

2. Input
   PLACE 0,0,NORTH
   TURN_LEFT
   GPS_REPORT

   Output: (0,0), WEST

3. Input
   PLACE 1,2,EAST
   FORWARD
   FORWARD
   TURN_LEFT
   FORWARD
   GPS_REPORT

   Output: (3,3), NORTH