Rocky Field Mapping and Ploughing Bot

Team Name : Innovation
Team No : 11

Team Members
Pradip Tivhale (CSE- M Tech 1) - [Group Leader]
Pankaj Gaikwad (CSE- M Tech 1)
Shyam Kumar (CSE- M Tech 1)
Naveen Kumar (CSE- M Tech 1)

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Functional Requirements

- Identifying Rocky area
- Localisation and plotting of map with grid
- Localisation without grid (sub goal)
- Decide the best path for ploughing

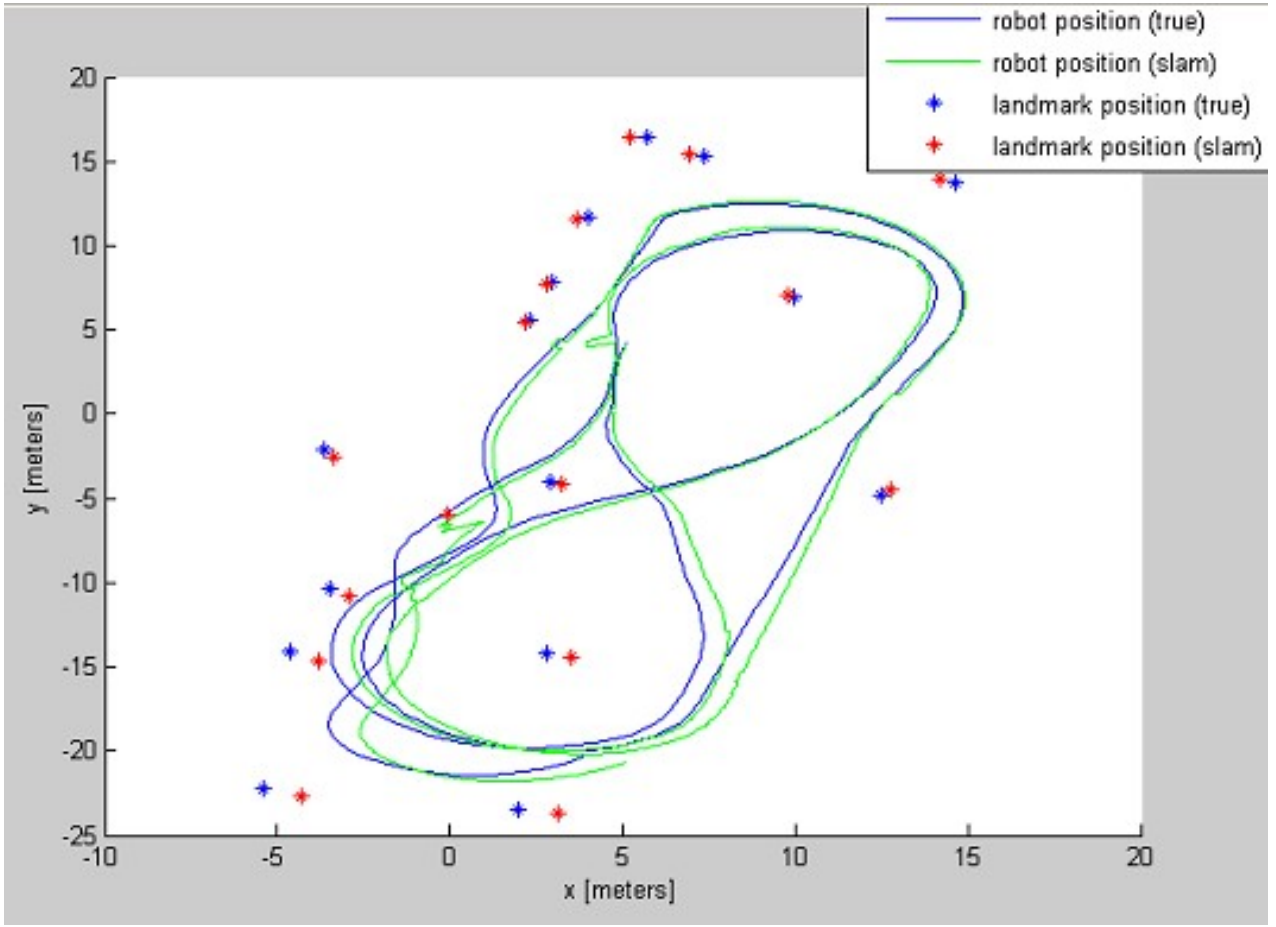
Challenges

- How to identify Rocks (Rocky area)??
- How to plot the map ??
- How to find the location of BOT ??
- Design the mechanism for ploughing.
- Decide the best route to plough!

Plan

- Identify the rocky area using MAGNETOMETER
- Calculate the distance by using the SENSORS
- e.g. SONAR, IR range sensors
- Identify the exact location of BOT using GRID mechanism
- Localisation and Plotting of the map by using the GNUPLOT using above data
- Decide the best route for ploughing
- Plough the field using NEEDLE like mechanism by following the instructions

Simulation


robot position (true)
robot position (slam)
landmark position (true)
landmark position (slam)
y [meters]
x [meters]
20
15
10
5
0
-5
-10
-15
-20
-25
-10
-5
0
5
10
15
20

Non-Functional Requirements

- Field Area to be covered
- Size of the grid
- Mapping Mechanism
- Energy Consumption
- Cost

Risk

- Obtaining the accurate location of rocks
- Plotting the map
- Obtain best route/path
- Design of NEEDLE like mechanism

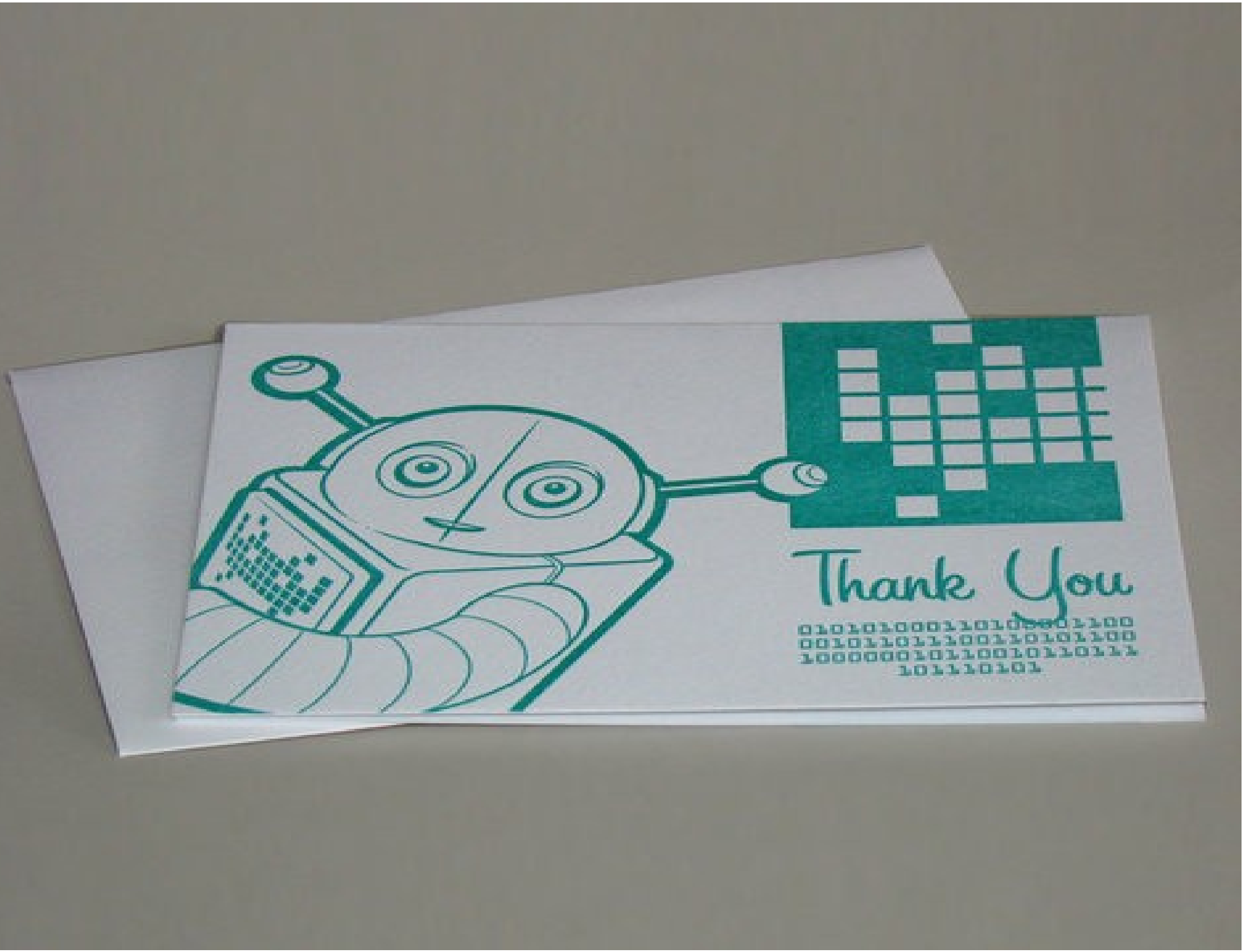
Test Data

Assume

- Rocks == Metals
- SAND == Thermocol pills

Testing Strategy

- Iterative,prototype based
- Build-n-test module-wise


Thank You