# Weekly report

## 1 My *Goals* from last week

- CASE 2016 video
- Swarmathon algorithm

## 2 My *Accomplishments* this week

### 2.1 SMT video

- Uploaded the latest version video of SMT manifolds and amplifiers

### 2.2 Swarmathon

Finished Swarmathon search algorithm. The following items are the function I programmed.

- Each robot is assigned a unique ID via publisher to carry out different tasks.
- The algorithm detects the boundary of the map to set up coordinate frame and grid division
- The whole map is divided into 4 equal-size quadrants, and each of these 4 quadrants is further divided into 4 smaller equal-size, and so on till the smallest quadrant has a grid resolution $\leq 0.8$ m.
- Assign weight to each grid.
- As targets are detected in a grid, the grid weight increases and so do the neighboring grids
- As a robot reaches a desired region but find targets already collected, decreases the grid weight
- Each time, a robot is trying locate the largest weight grid and set for goal location.
- The reason using grid division is to reduce on-board computation, so a robot does not have to scan the whole map to decide the next goal location.