ARLISS 2014
Breakfast Meeting

The University of Electro-Communications
Takadama Laboratory

last year, our rover reached goal in ARLISS

But...

Limit of goal accuracy

And

2nd launch, our rover stuck.

Is there any rover solving these problems?

the answer is ...

YES!!

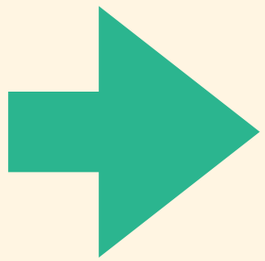
This is our new Rover !!

Raspberry Pi + Web Camera + Movable Stabilizer based rover with multiple sensors.

Light, Acceleration, Pressure, Gyro, GPS

Two new challenging techniques

1st



Goal Detection

Rover can detect goal object by using image processing.
Calculating the goal’s balance from red part of the image,
moving toward goal.

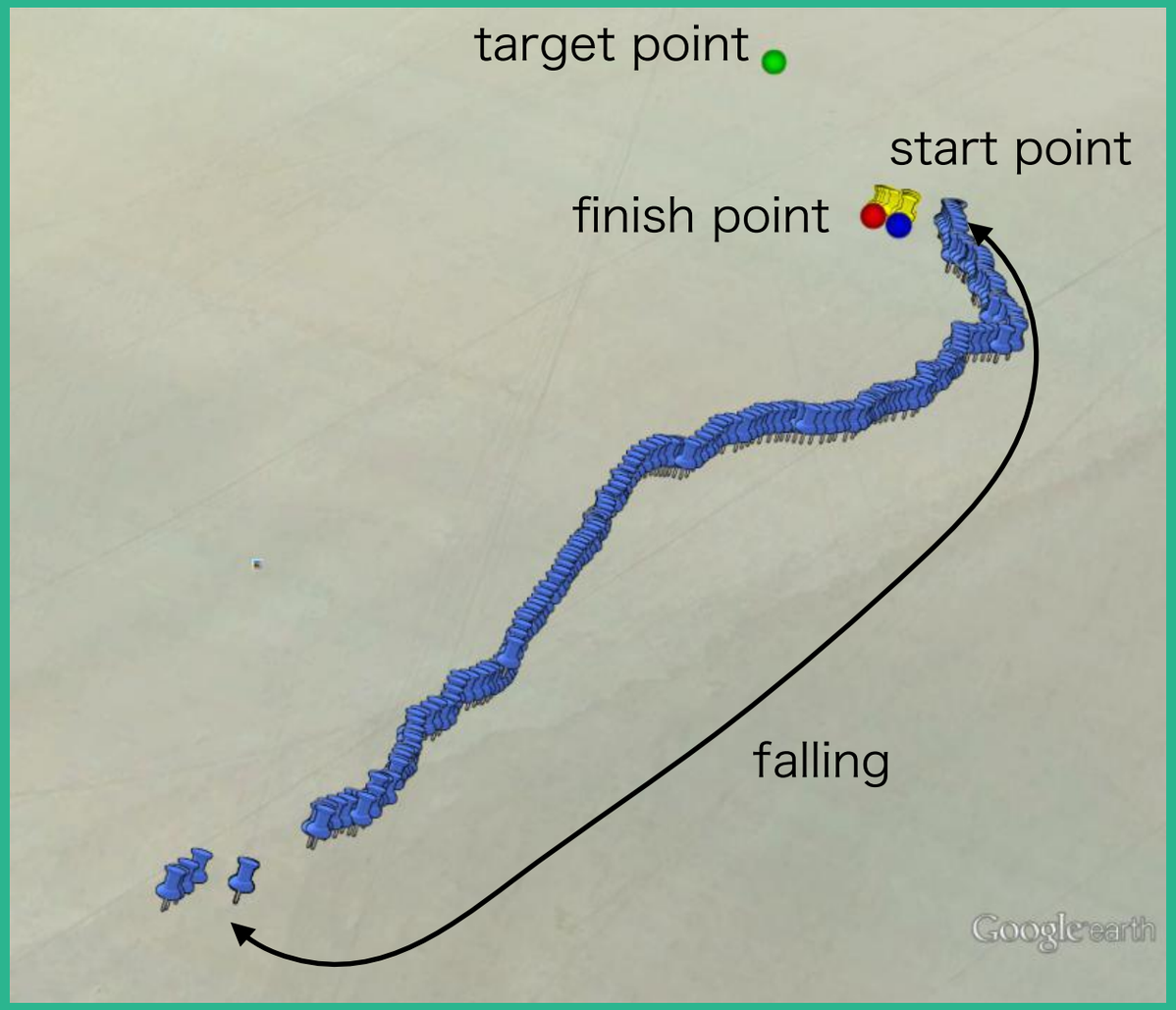
2nd

Moving like a inchworm

Rover can move in soft sandy soil
by the stabilizer with servomotor.

comeback results

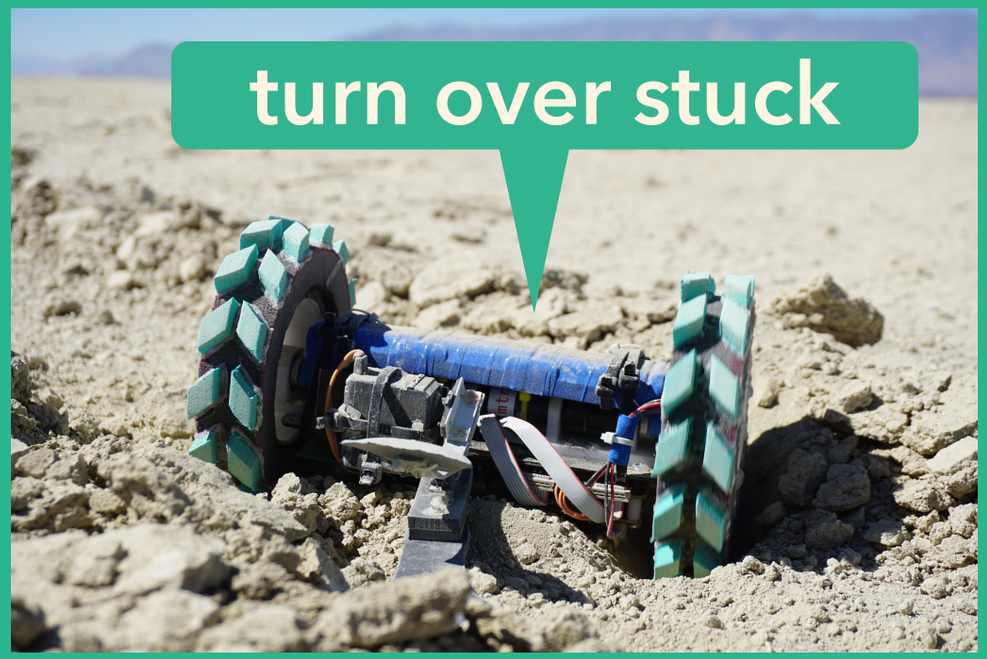
1st flight : Jonathan

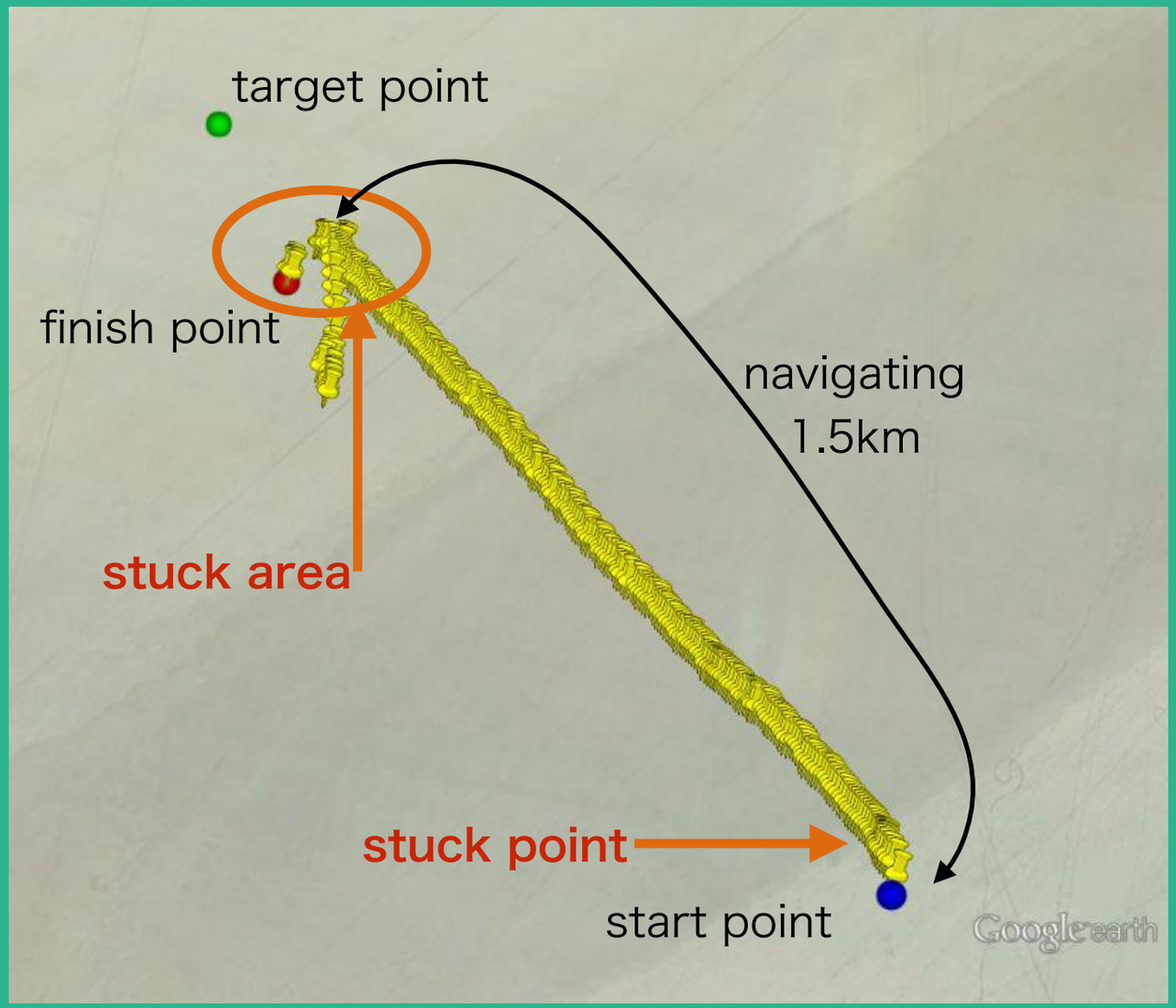


distance between falling point and target point :

381m

2nd flight : Matt





distance between finish point and target point :

360.8m

mission results

3 missions

minimum success

detect stuck quickly, change over to inchworm mode and escape from soft sandy soil with a probability of 80% .

#	escapeing	detection time [sec]
1	✔	2
2	✔	7
3	✔	3
4	✔	3
5	✔	3

we succeeded !!

full success

reach the target point in 1m by goal detection and moving control with a probability of 80%.

#	in 1m *	distance
1	✔	20 cm
2	✔	0 cm
3	✔	35 cm
4	✔	0 cm
5	✔	30 cm

*start from 10m

we succeeded !!

advanced success

climb the rutted road by movable stabilizer with a probability of 50% .

#	climbing
1	✔
2	✔
3	✔
4	✔
5	✔

we succeeded !!

Thank you so much for Aeropac members and all the staffs of ARLISS 2014