

# SugarTrail Code Introduction

## 1 Phase 1: Signature Test

- Location:
  - Getting Data: \sugar\cluster\reading\_testing
  - Analysis: \sugar\cluster\analysis\lab\_signature
- Fig:
  - Stable reading for one node
  - Disturbed reading for one node
  - Relatively stable signature for one node
- Run: \sugar\cluster\analysis\lab\_signature\sig\_analysis.m

## 2 Phase 2: Distribution Table/Curve generate

- Location: \sugar\cluster\distribution
- Fig:
  - Relation of ranging distance and real distance
- Run:

## 3 Phase 3: Hallway Test

- Location: \sugar\cluster\hallway\_simulation
- Fig:
  - Cluster
  - Navigation
  - Base number and performance
  - Cluster size threshold and performance
- Run: main.c

## 4 Phase 4 : Lab(Field Test)

- Location: \sugar\cluster\lab\_field\_test
- Fig: None
- Run: main.c

## 5 Phase 5: Lab(Database Test)

- Location: \sugar\cluster\lab\_database
- Fig:
  - Clustering(path\_length = 10000)
  - Navigaion
- Run:
  - p1\_collect\_readings.m (collecting data, done, don't run again)
  - p2\_data\_process.m (generate proper data structure for later, done, don't run again)
  - p3\_generate\_cluster.m
  - p4\_match\_area\_to\_cluter.m
  - p5\_testing.m
  - p6\_kmeans.m

## 6 Phase 6: Supermarket Experiment

- Location: \sugar\cluster\supermarket\_exp
- Supermarket layout: supermarket.skp
- Fig:
  - Compass Direction
  - Clustering(path\_length = 10000)
  - Navigation
- Run:
  - p1\_collect\_readings.m (collecting data, done, don't run again)
  - p2\_data\_process.m (generate proper data structure for later, done, don't run again)
  - draw\_compass\_direction.m
  - p3\_generate\_cluster.m
  - p4\_testing.m