**Beta Version**

**Path-Planning Part**

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**Module Descriptions**

1. Path\_Planning

It has the function of (1) assign the task for each robot (2) calculate the path for each robot

2. VP

It is the Path-Cutter so that each robot does not collide with each other, it is a second grant for safety

3. smallMap

It is a very simple map, it has nodes and links, we do path planning on this map

4. Emulator

It is a very simple python simulator written for the simulation of the robots

5. GUI

It is a very simple GUI written in python tkinter to see the simulation of the robots and map.

6. Video

These are some short videos that I captured, if you run the program correctly, you should have seen the same things.

**Installations and Builds**

1.Install redis server and start redis server

Open a new terminal, then

Linux: sudo apt-get install redis-server

Macos : brew install redis

redis-server

2. Build Path\_Planning Module

cd Path\_Planning

rm -rf build

mkdir build

cd build

cmake ..

make

3. Build Mapper

cd VP

rm -rf build

mkdir build

cd build

cmake ..

make

**Run the whole program**

1. Initialize the map and store to redis

cd smallMap

cd zrf\_version

pip install redis

python smallmap.py

2. Initialize the robot information in redis

cd Path\_Planning

python init3Cars.py

3. Run Path\_Planning module

Open another terminal

cd Path\_Planning/build/RF\_PP

./RFPP

4. Run Mapper module

Open another terminal

cd VP/build/Mapper

./Mapper

5. Run Simulation

Open another terminal

cd Emulator

python emulator.py

6. Run DeadLockChecker

Open another terminal

cd DeadLockChecker

python deadlockChecker.py

7. Run GUI

Open another terminal

cd GUI

python gui.py

**Platform Customization:**

Macos specific:

replace abs with fabs in Path\_planning main.cpp

replace hiredis/hiredis.h with ../../hiredis/hiredis.h

Now, you can see there robots moving, just like in the Video directory’s videos.