AI & Robotics

Robot simulations with Webots and ROS

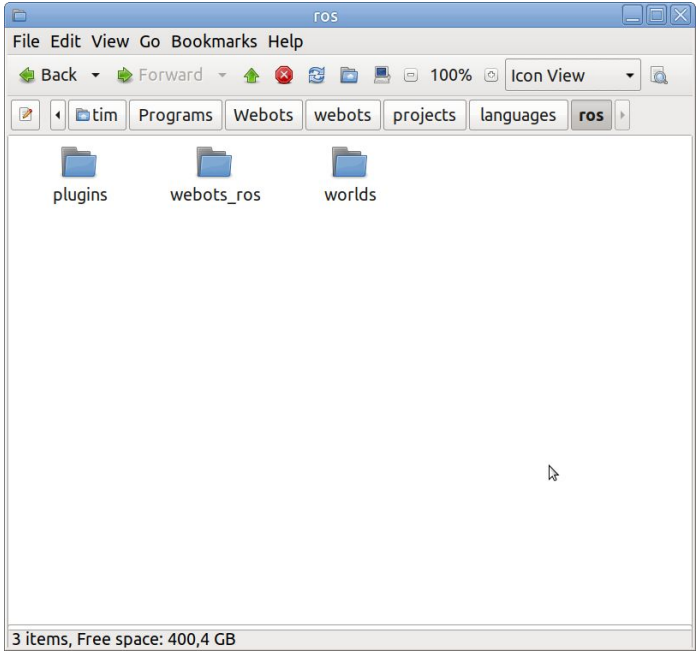
PXL AI & ROBOTICS LAB

Goals

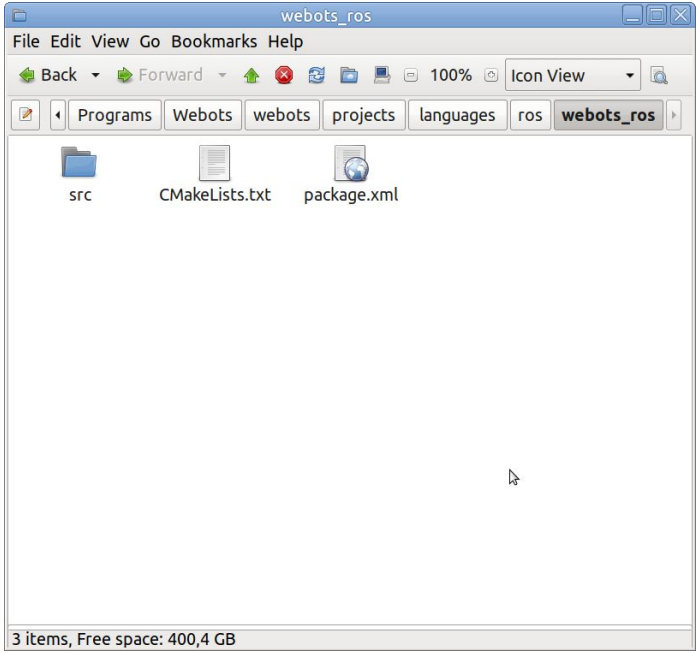
The **junior-colleague**

- can connect ROS to Webots

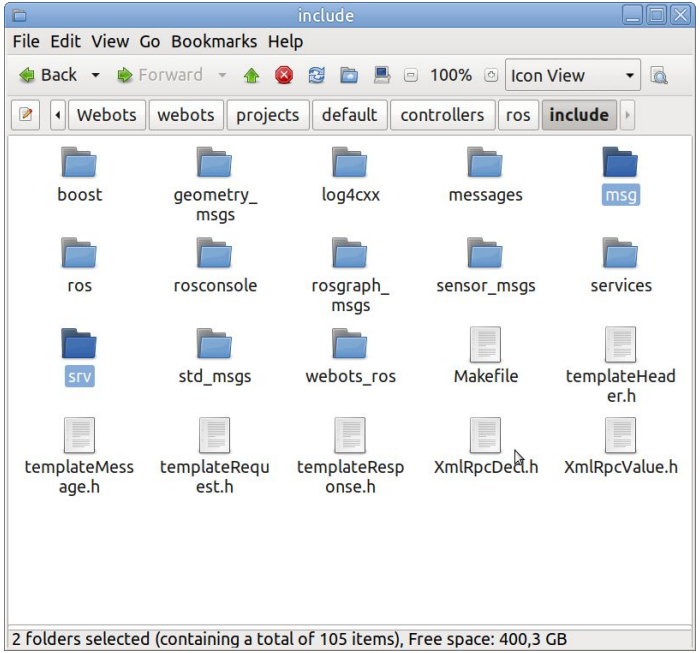
The webots_ros package



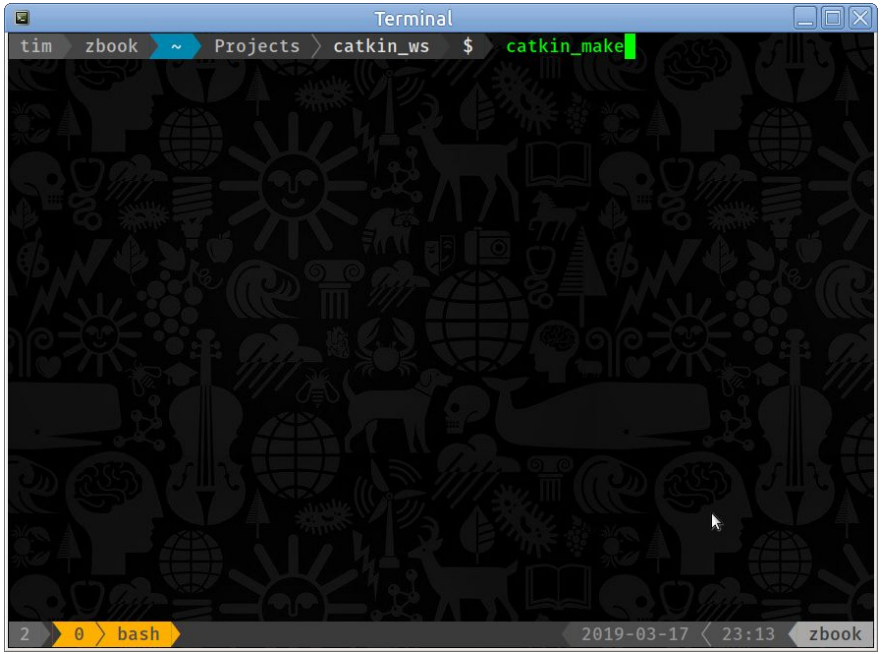
The webots_ros package



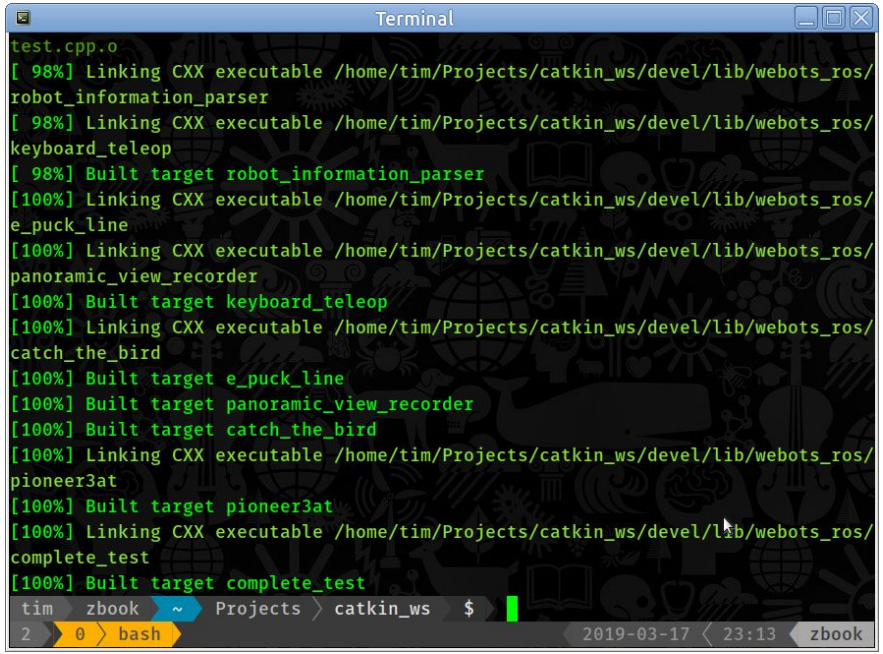
The ROS messages and service files



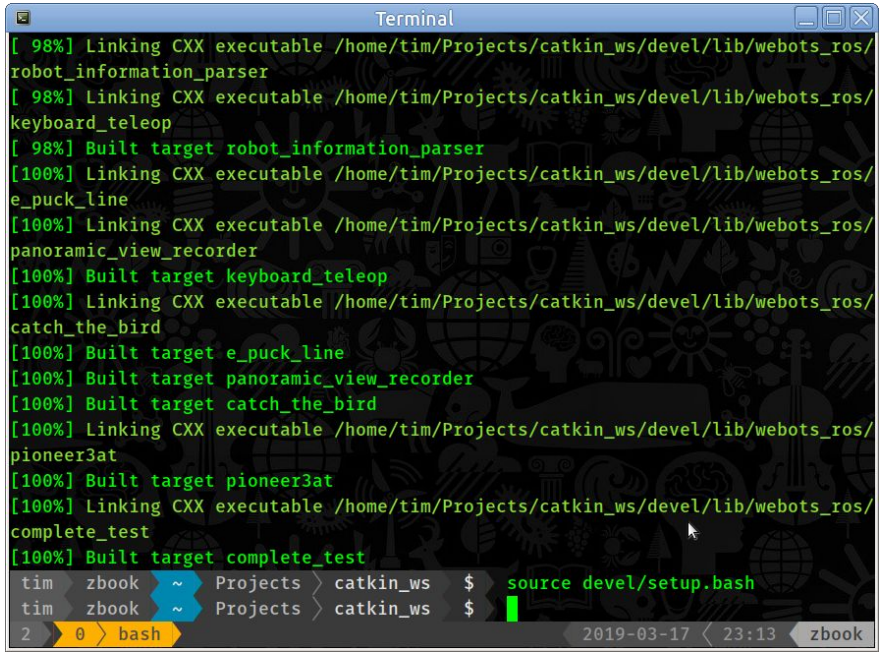
Building


Terminal
tim zbook ~ Projects catkin_ws $ catkin_make
2 0 bash 2019-03-17 23:13 zbook

Building


Terminal
test.cpp.o
[98%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/robot_information_parser
[98%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/keyboard_teleop
[98%] Built target robot_information_parser
[100%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/e_puck_line
[100%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/panoramic_view_recorder
[100%] Built target keyboard_teleop
[100%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/catch_the_bird
[100%] Built target e_puck_line
[100%] Built target panoramic_view_recorder
[100%] Built target catch_the_bird
[100%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/pioneer3at
[100%] Built target pioneer3at
[100%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/complete_test
[100%] Built target complete_test
tim zbook ~ Projects catkin_ws $
2 0 bash
2019-03-17 23:13 zbook

Building


Terminal
[98%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/robot_information_parser
[98%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/keyboard_teleop
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[100%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/e_puck_line
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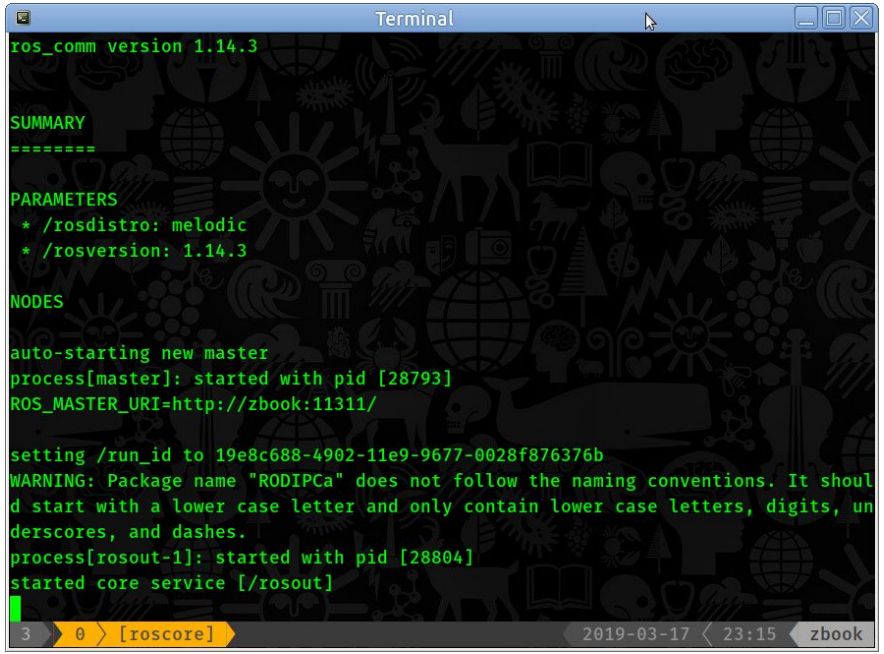
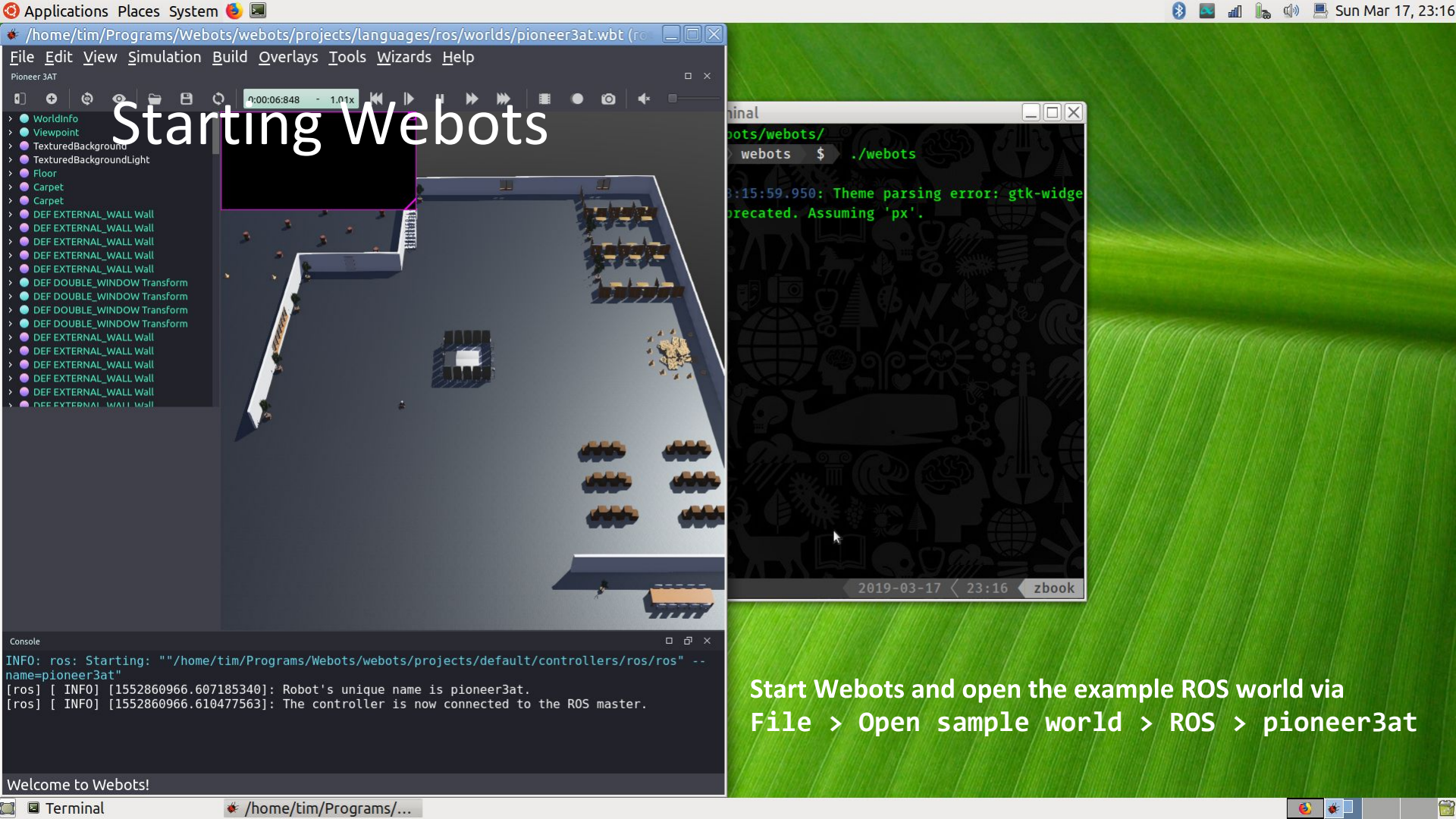
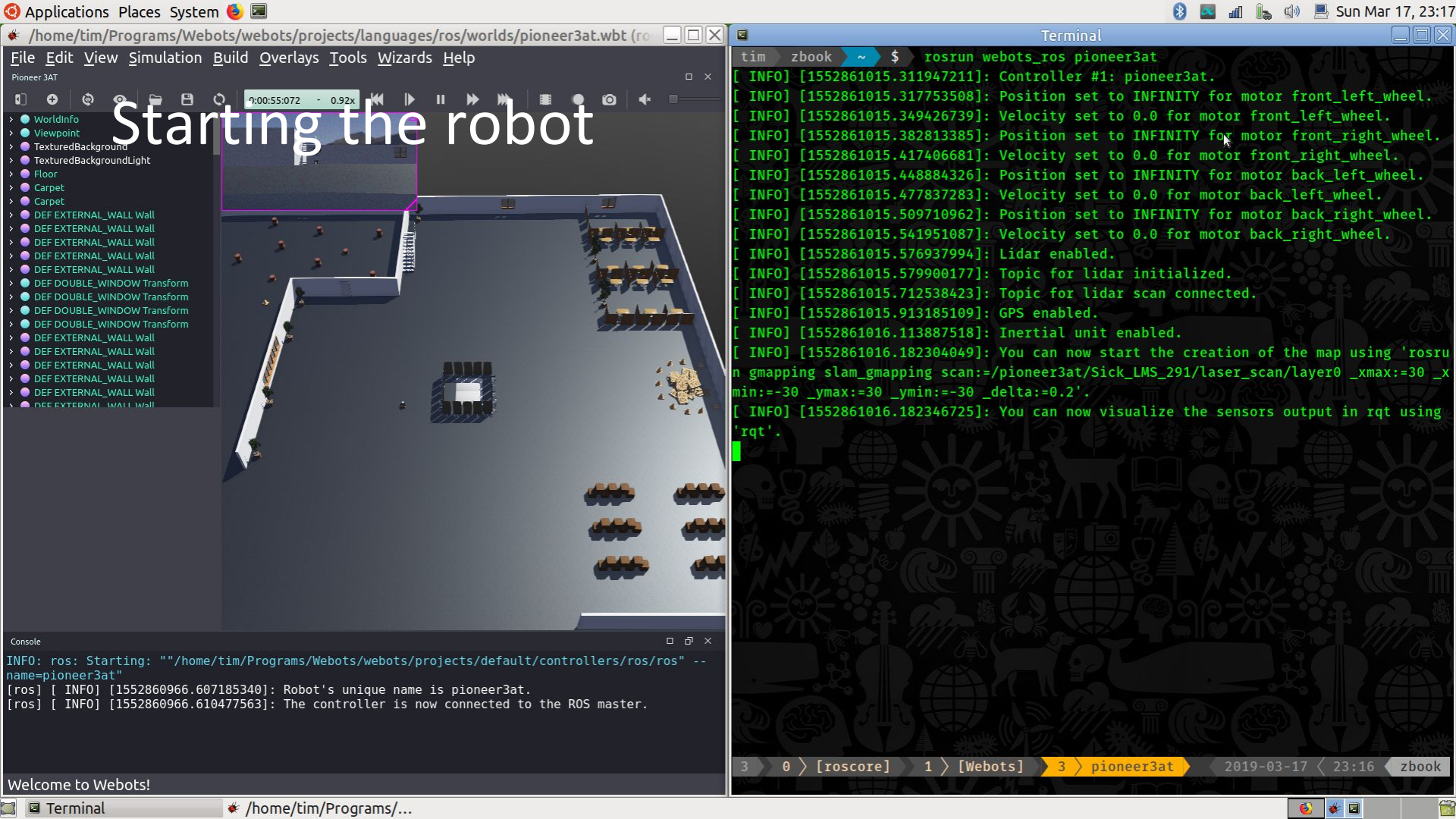
[100%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/pioneer3at
[100%] Built target pioneer3at
[100%] Linking CXX executable /home/tim/Projects/catkin_ws/devel/lib/webots_ros/complete_test
[100%] Built target complete_test
tim zbook ~ Projects catkin_ws $ source devel/setup.bash
tim zbook ~ Projects catkin_ws $
2 0 bash
2019-03-17 23:13 zbook

Starting roscore



Starting Webots




Applications Places System
Sun Mar 17, 23:17
/home/tim/Programs/Webots/webots/projects/languages/ros/worlds/pioneer3at.wbt
File Edit View Simulation Build Overlays Tools Wizards Help
Pioneer 3AT
Starting the robot
WorldInfo
Viewpoint
TexturedBackground
TexturedBackgroundLight
Floor
Carpet
Carpet
DEF EXTERNAL_WALL Wall
DEF DOUBLE_WINDOW Transform
Console
INFO: ros: Starting: ""/home/tim/Programs/Webots/webots/projects/default/controllers/ros/ros" --name=pioneer3at"
[ros] [INFO] [1552860966.607185340]: Robot's unique name is pioneer3at.
[ros] [INFO] [1552860966.610477563]: The controller is now connected to the ROS master.
Welcome to Webots!
Terminal
tim zbook ~ $ rosrun webots_ros pioneer3at
[INFO] [1552861015.311947211]: Controller #1: pioneer3at.
[INFO] [1552861015.317753508]: Position set to INFINITY for motor front_left_wheel.
[INFO] [1552861015.349426739]: Velocity set to 0.0 for motor front_left_wheel.
[INFO] [1552861015.382813385]: Position set to INFINITY for motor front_right_wheel.
[INFO] [1552861015.417406681]: Velocity set to 0.0 for motor front_right_wheel.
[INFO] [1552861015.448884326]: Position set to INFINITY for motor back_left_wheel.
[INFO] [1552861015.477837283]: Velocity set to 0.0 for motor back_left_wheel.
[INFO] [1552861015.509710962]: Position set to INFINITY for motor back_right_wheel.
[INFO] [1552861015.541951087]: Velocity set to 0.0 for motor back_right_wheel.
[INFO] [1552861015.576937994]: Lidar enabled.
[INFO] [1552861015.579900177]: Topic for lidar initialized.
[INFO] [1552861015.712538423]: Topic for lidar scan connected.
[INFO] [1552861015.913185109]: GPS enabled.
[INFO] [1552861016.113887518]: Inertial unit enabled.
[INFO] [1552861016.182304049]: You can now start the creation of the map using 'rosrun gmapping slam_gmapping scan:=/pioneer3at/Sick_LMS_291/laser_scan/layer0 _xmax:=30 _xmin:=-30 _ymax:=30 _ymin:=-30 _delta:=0.2'.
[INFO] [1552861016.182346725]: You can now visualize the sensors output in rqt using 'rqt'.
3 0 [roscore] 1 [Webots] 3 pioneer3at 2019-03-17 23:16 zbook
Terminal
/home/tim/Programs/...

More Qt in ROS: rqt