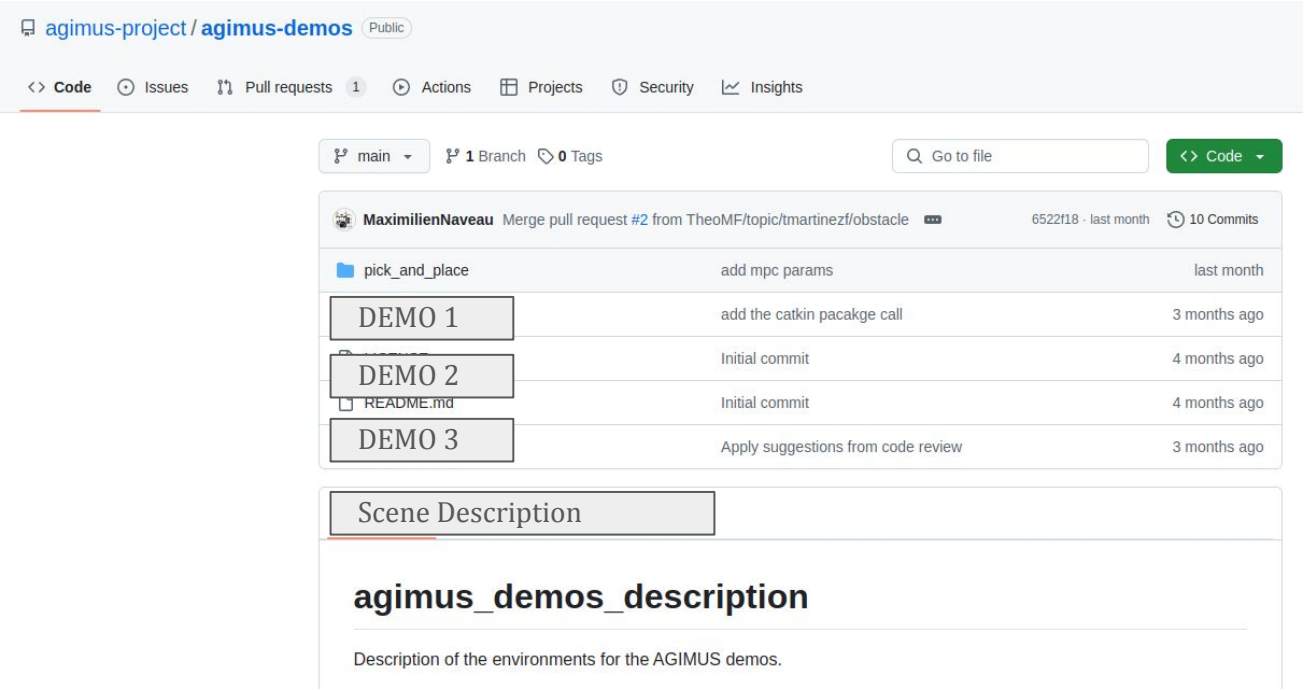
Prague Coding Week
25-29 Nov 2024

AGIMUS
INNOVATIVE ROBOTICS FOR AGILE PRODUCTION

Kick-off meeting

Funded by the European Union under GA no.101070165. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union. The granting authority cannot be held responsible for them.

Funded by
the European Union

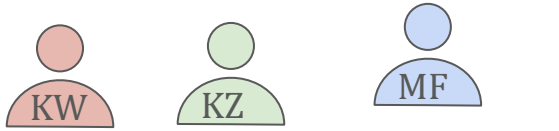


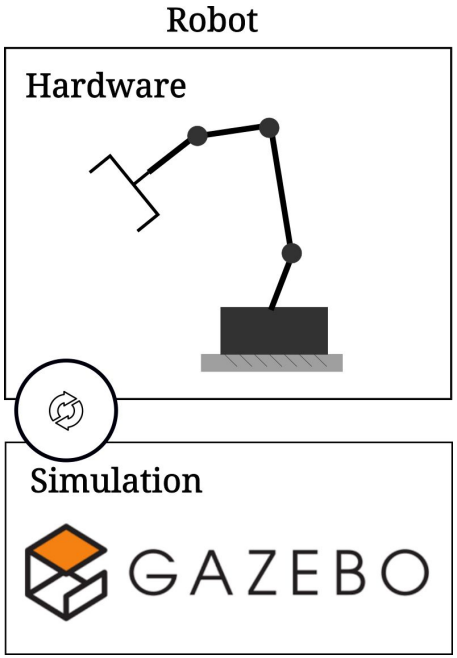
Entry point
Contains:

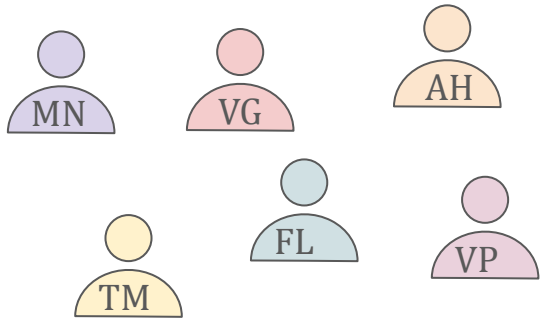
- launch files
- config files
- readme
- readthedoc…

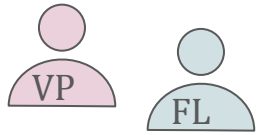

docker

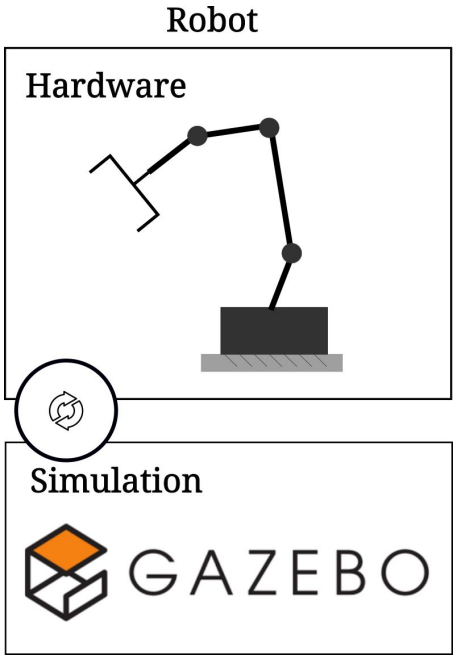

docker

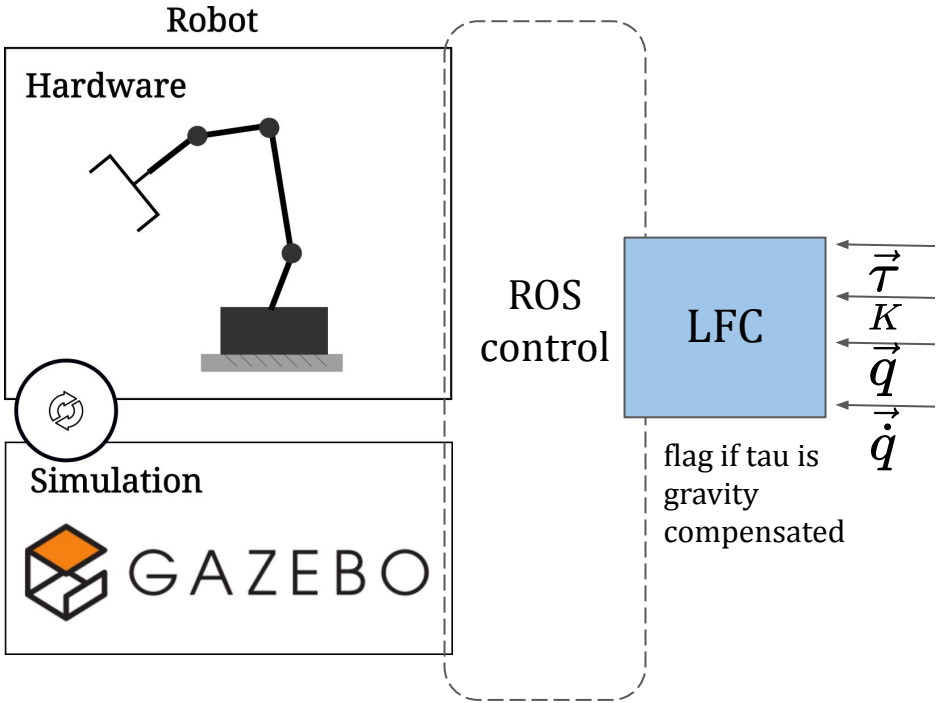

KW
KZ
MF

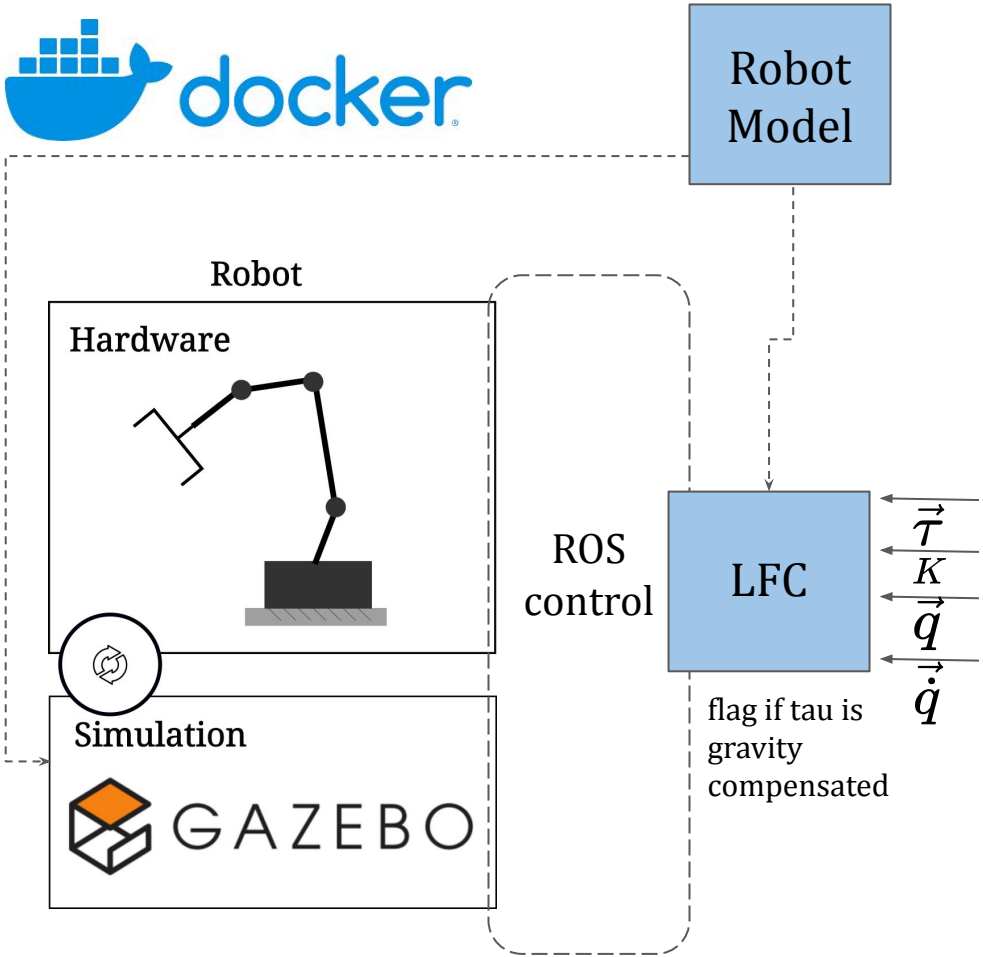

Robot
Hardware
Simulation
GAZEBO

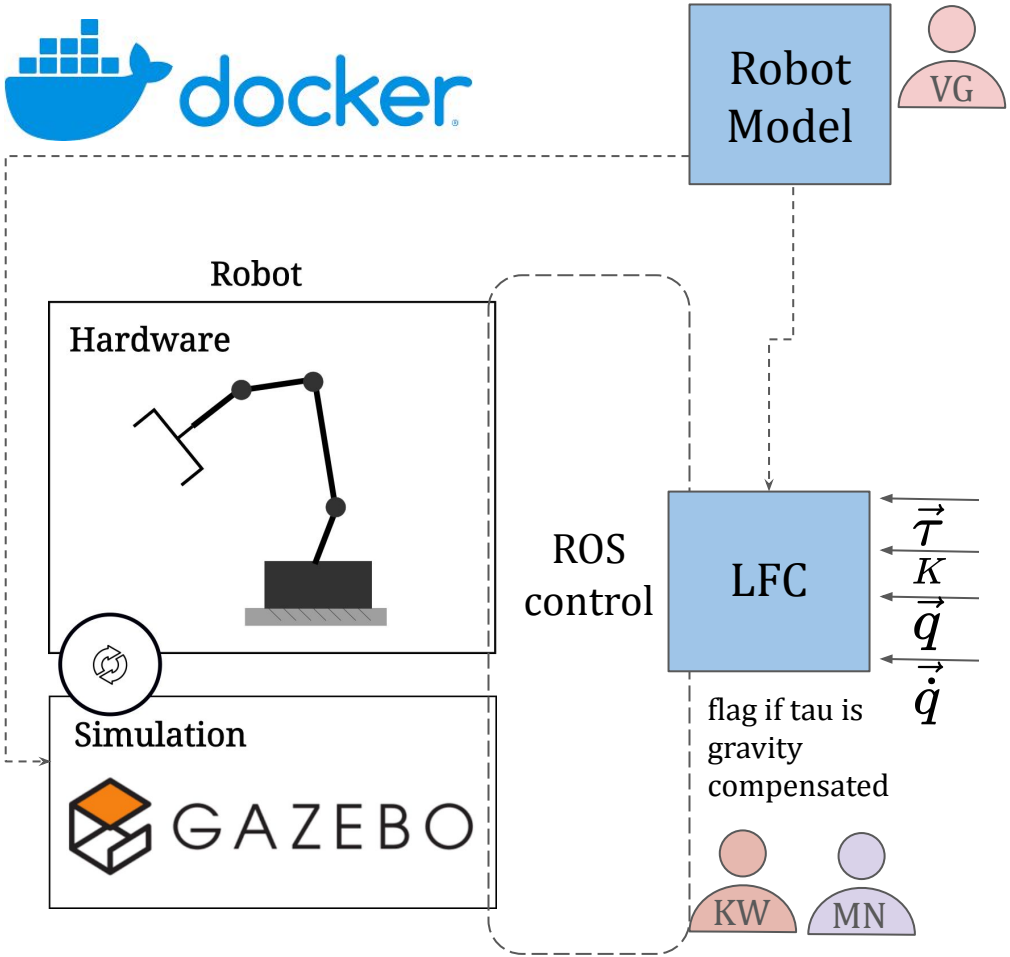

MN
VG
AH
FL
VP
TM


VP
FL


Robot
Hardware
Simulation
GAZEBO


Robot
Hardware
Simulation
GAZEBO
ROS
control
LFC
$\vec{\tau}$
K
$\vec{q}$
$\dot{\vec{q}}$
flag if tau is
gravity
compensated


docker
Robot Model
Robot
Hardware
ROS control
LFC
$\vec{\tau}$
K
$\vec{q}$
$\dot{\vec{q}}$
flag if tau is gravity compensated
Simulation
GAZEBO



DEMO 1: launch sim, zero input

MF AH

KZ TM

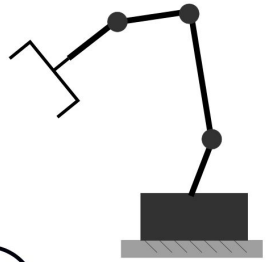
Robot Model

DEMO 2: reach q via PD+ control

MF AH

Robot

Hardware



Simulation

ROS control

LFC

$\vec{\tau}$ K $\vec{q}$ $\dot{\vec{q}}$

PD+ controller

flag if tau is gravity compensated

KW MN VG

KZ TM

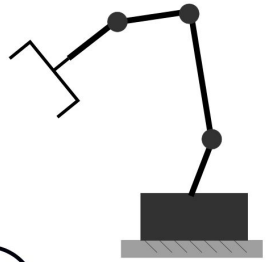
Scene Model

DEMO 3: MPC, reach pose, reach q

MN

Robot

Hardware



Simulation

ROS control

LFC

$\vec{\tau}$

K

$\vec{q}$

$\dot{\vec{q}}$

MPC

traj

dummy traj

VG MF KZ

AH TM

KW

flag if tau is gravity compensated

TrajectoryPoint:

- ee_ref_pose + weight
- q + weight
- q_dot + weight
- q_ddot + weight

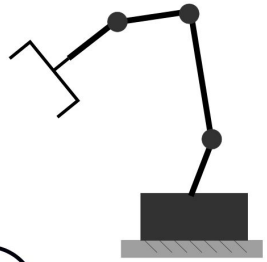
Robot Model

DEMO 4: MPC + vision - reach pose

VG KZ

Robot

Hardware



Simulation

ROS control

LFC

$\vec{\tau}$ K $\vec{q}$ $\dot{\vec{q}}$

flag if tau is gravity compensated

MPC

AH TM MN

traj

vision traj

KW MF

DEMO 5: MPC + vision - hardcoded plan

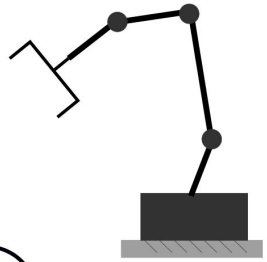
- Reach “handle” (pregrasp)
- Approach object
- Grasp
- Go up
- Release

KZ MF

Robot Model

Robot

Hardware



Simulation

ROS control

LFC

$\vec{\tau}$ K $\vec{q}$ $\dot{\vec{q}}$

MPC

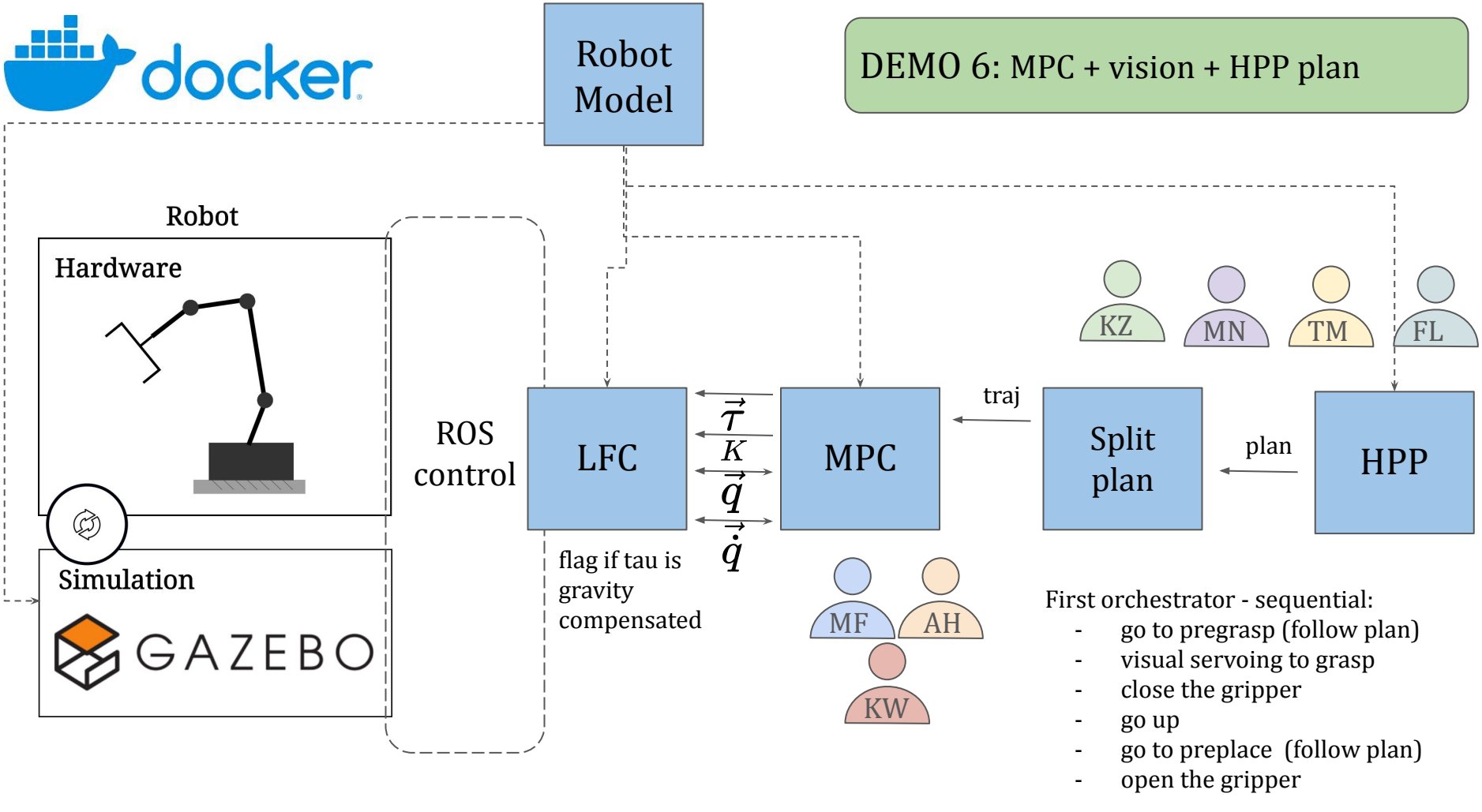
traj

vision traj

flag if tau is gravity compensated

TM AH

KW MN VG


docker
Robot Model
DEMO 6: MPC + vision + HPP plan
Robot
Hardware
Simulation
GAZEBO
ROS control
LFC
MPC
Split plan
HPP
traj
plan
$\vec{\tau}$
K
$\vec{q}$
$\dot{\vec{q}}$
flag if tau is gravity compensated
KZ
MN
TM
FL
MF
AH
KW
First orchestrator - sequential:
- go to pregrasp (follow plan)
- visual servoing to grasp
- close the gripper
- go up
- go to preplace (follow plan)
- open the gripper