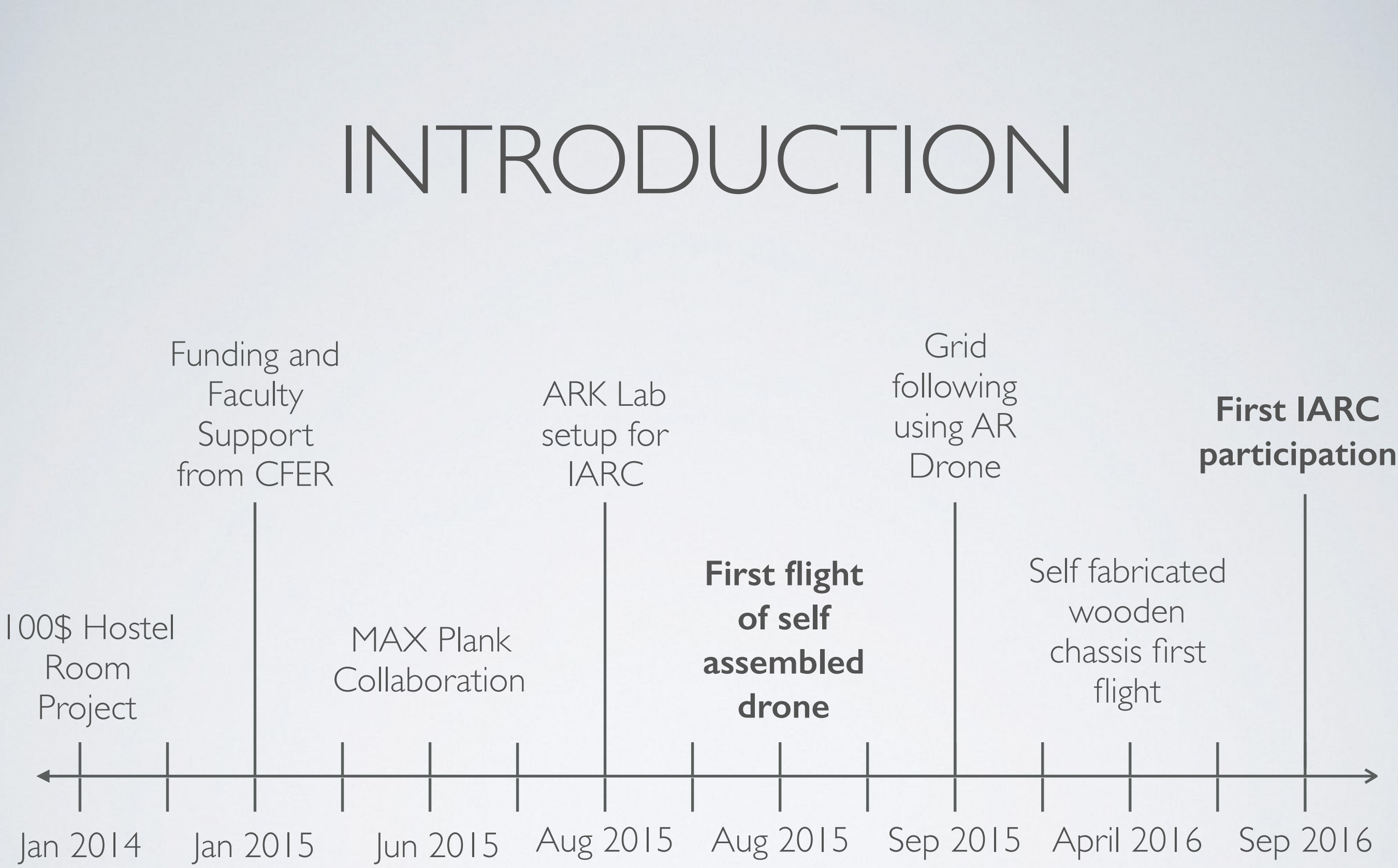
INTERNATIONAL AERIAL ROBOTICS COMPETITION 2016

Aerial Robotics Kharagpur (ARK)

INTRODUCTION

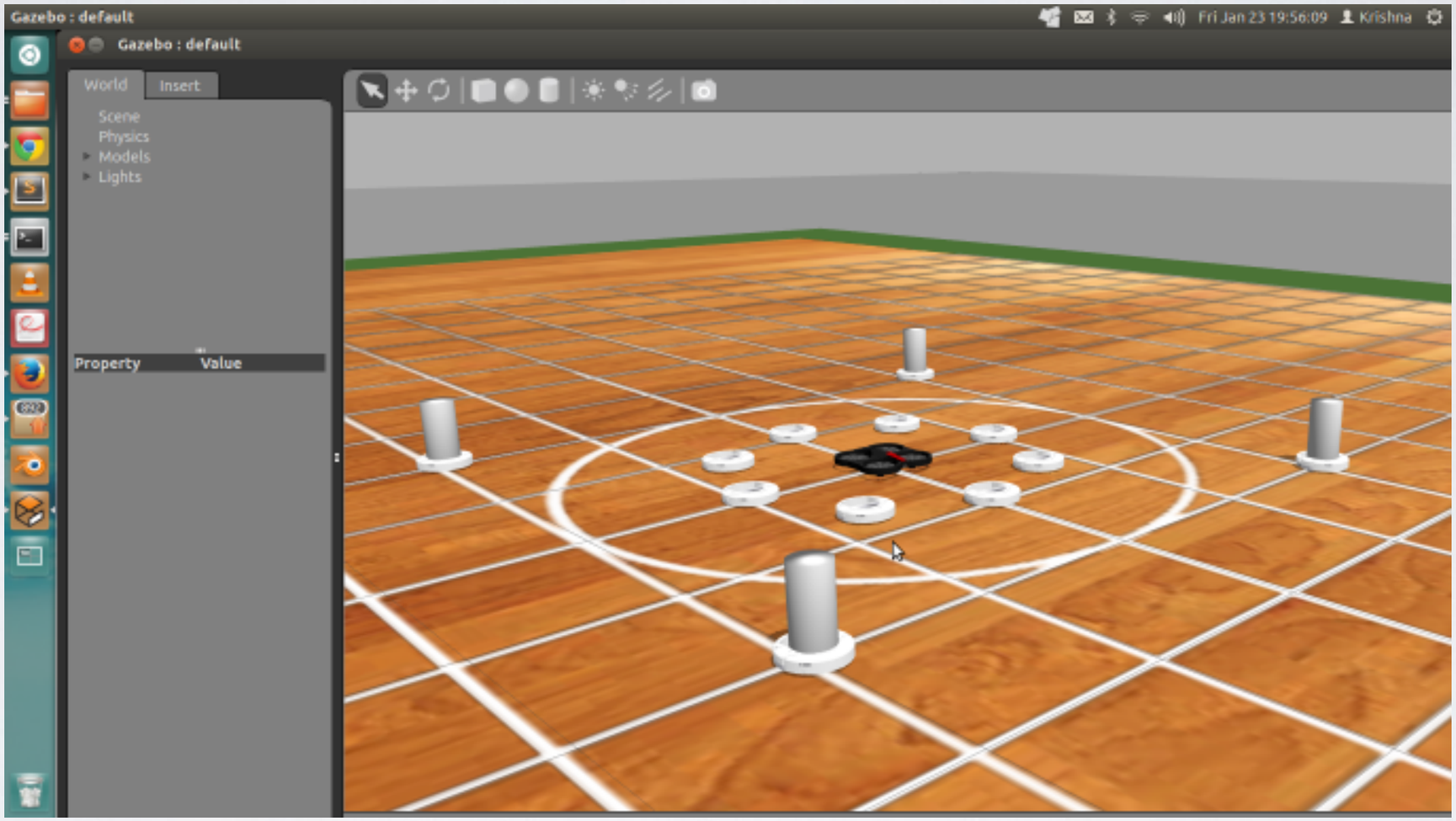


VEHICLE DESIGN

Description	Component
High Level Controller	Raspberry Pi/Odroid
Low Level Controller	ArduPilot Mega
Electronic Speed Controllers	45A OPTO
Battery	11.1V/6000 mAh + 11.V/2000mAh
Motors	Turnigy Multi-star, 6 x 850kv BLDC
Propellers	11 in x 4.7 in
Camera	Logitech 30 FPS, 78 degree FOV, 16: 9
Chasis	Self Fabricated using Wood for fast iterations

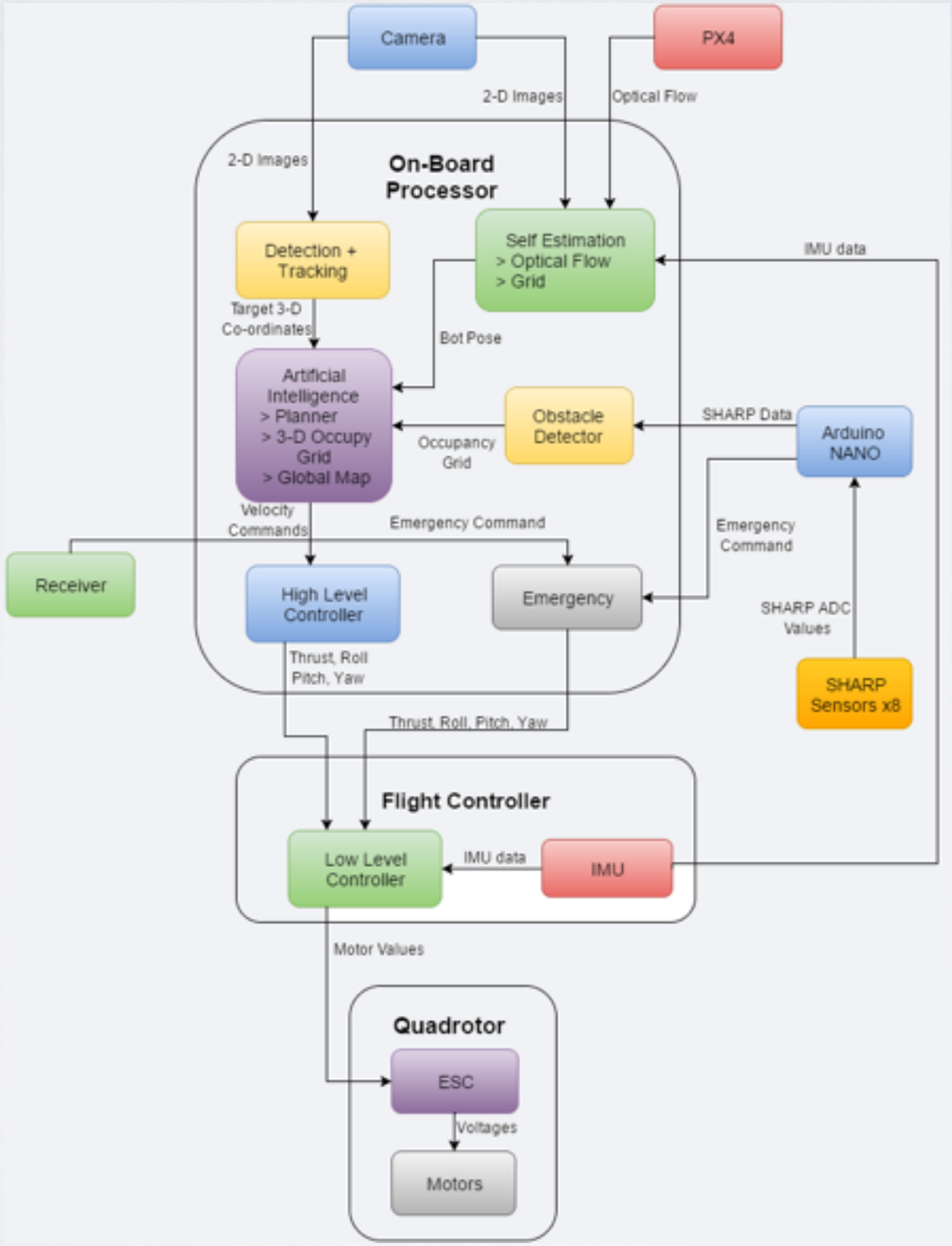
ARK Lab in IIT Kharagpur

SIMULATION

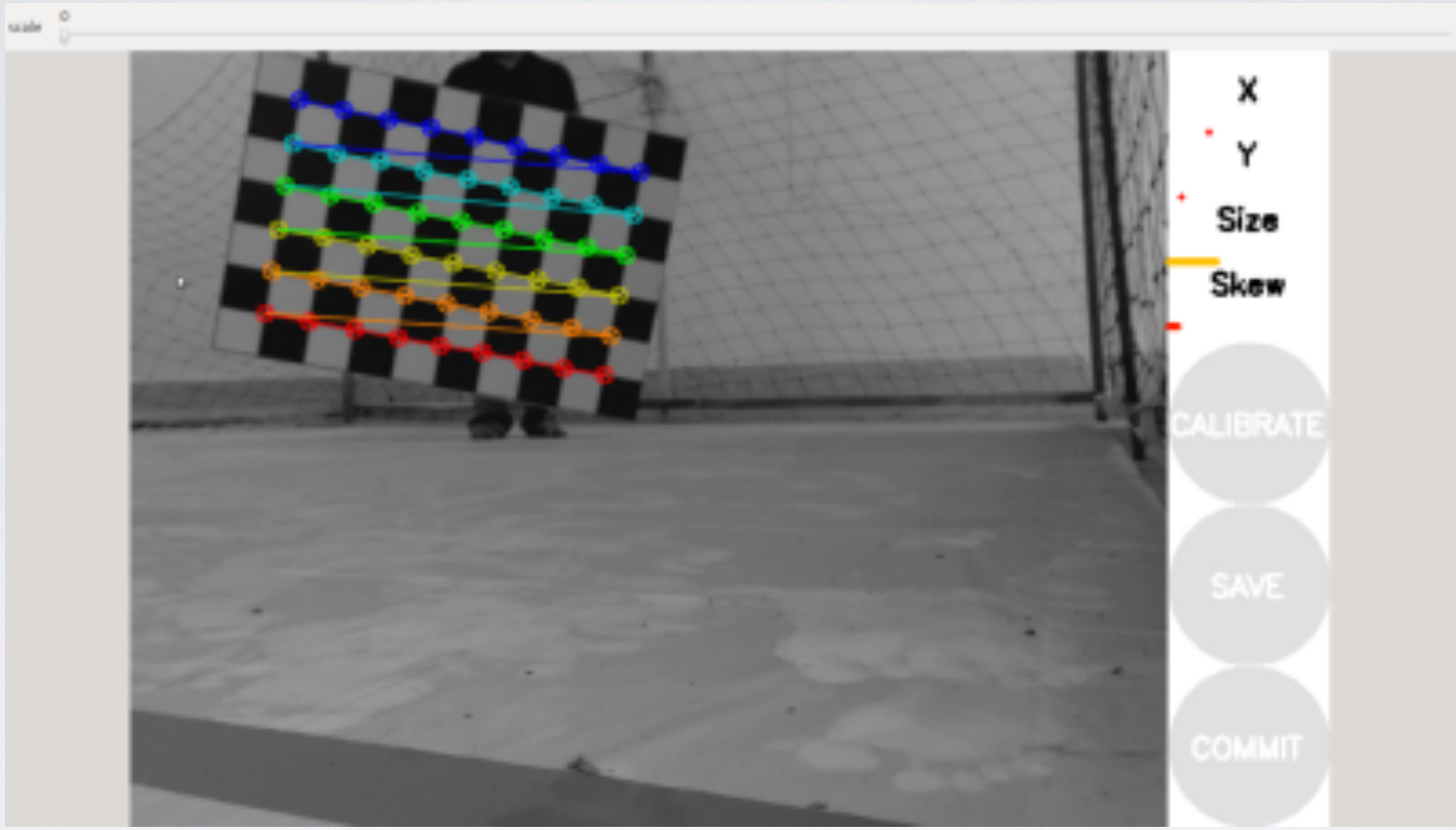


Gazebo Simulation

SYTEM ARCHITECTURE

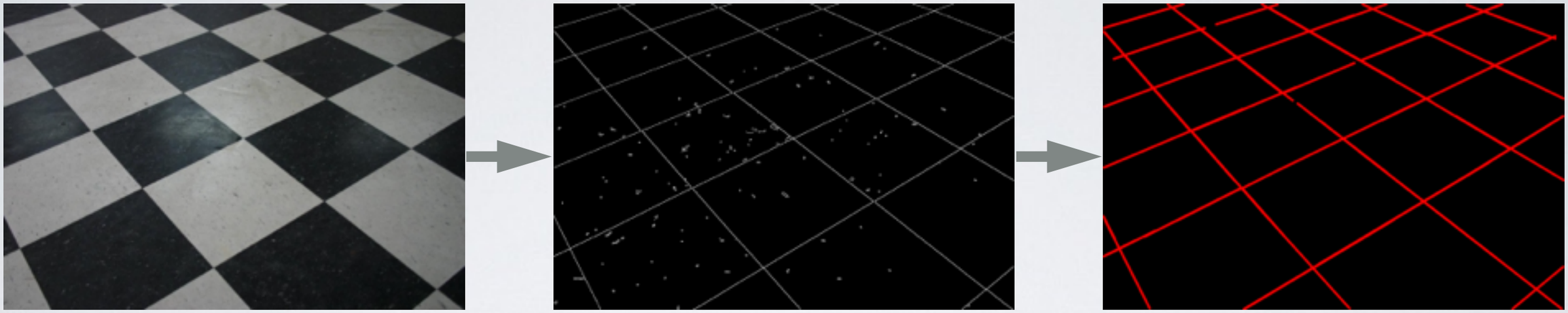


TRUE VALUE SETUP

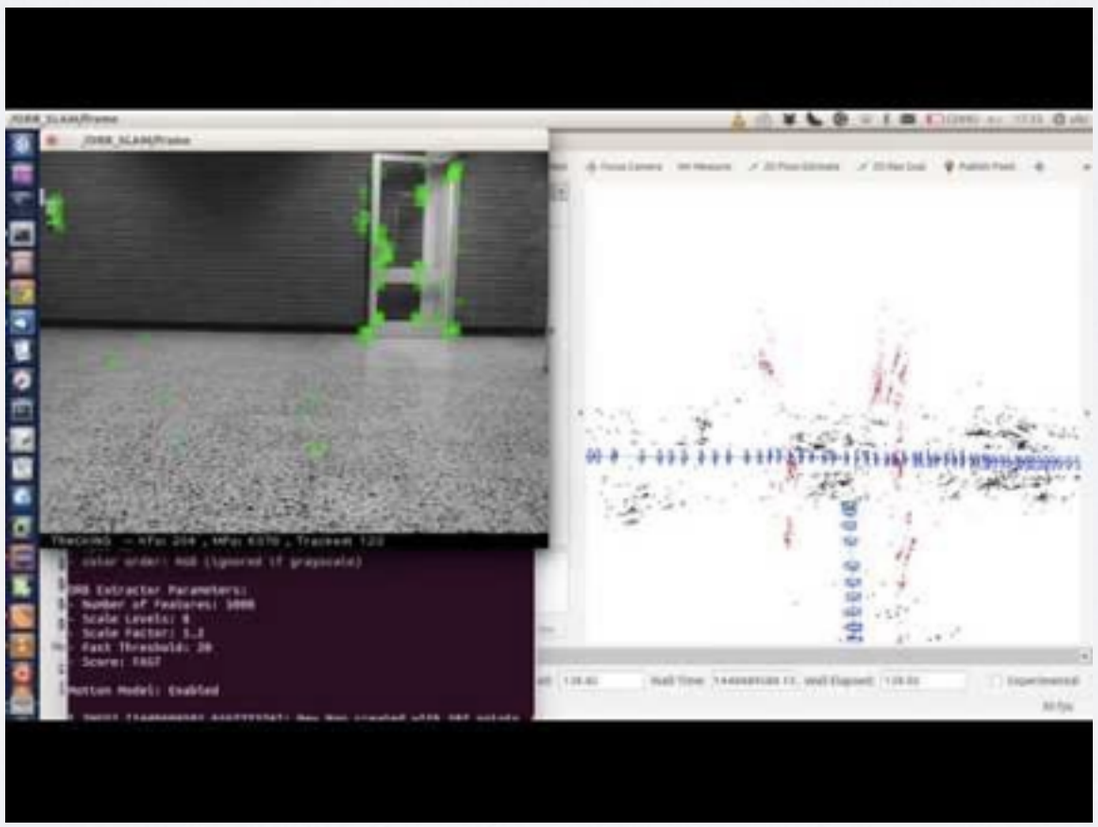


True value setup using April Tags and cameras

LOCALISATION



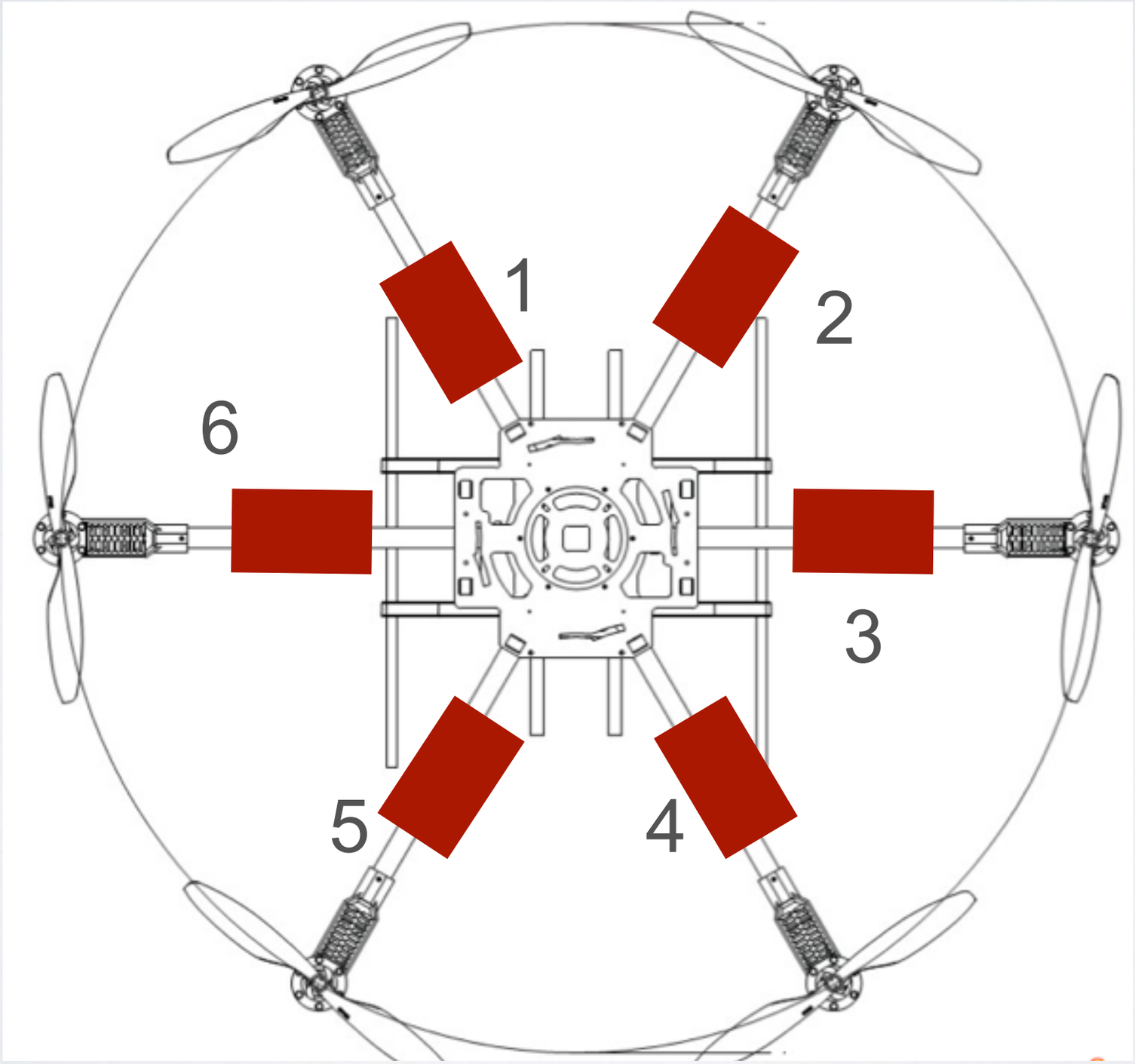
Grid based localisation



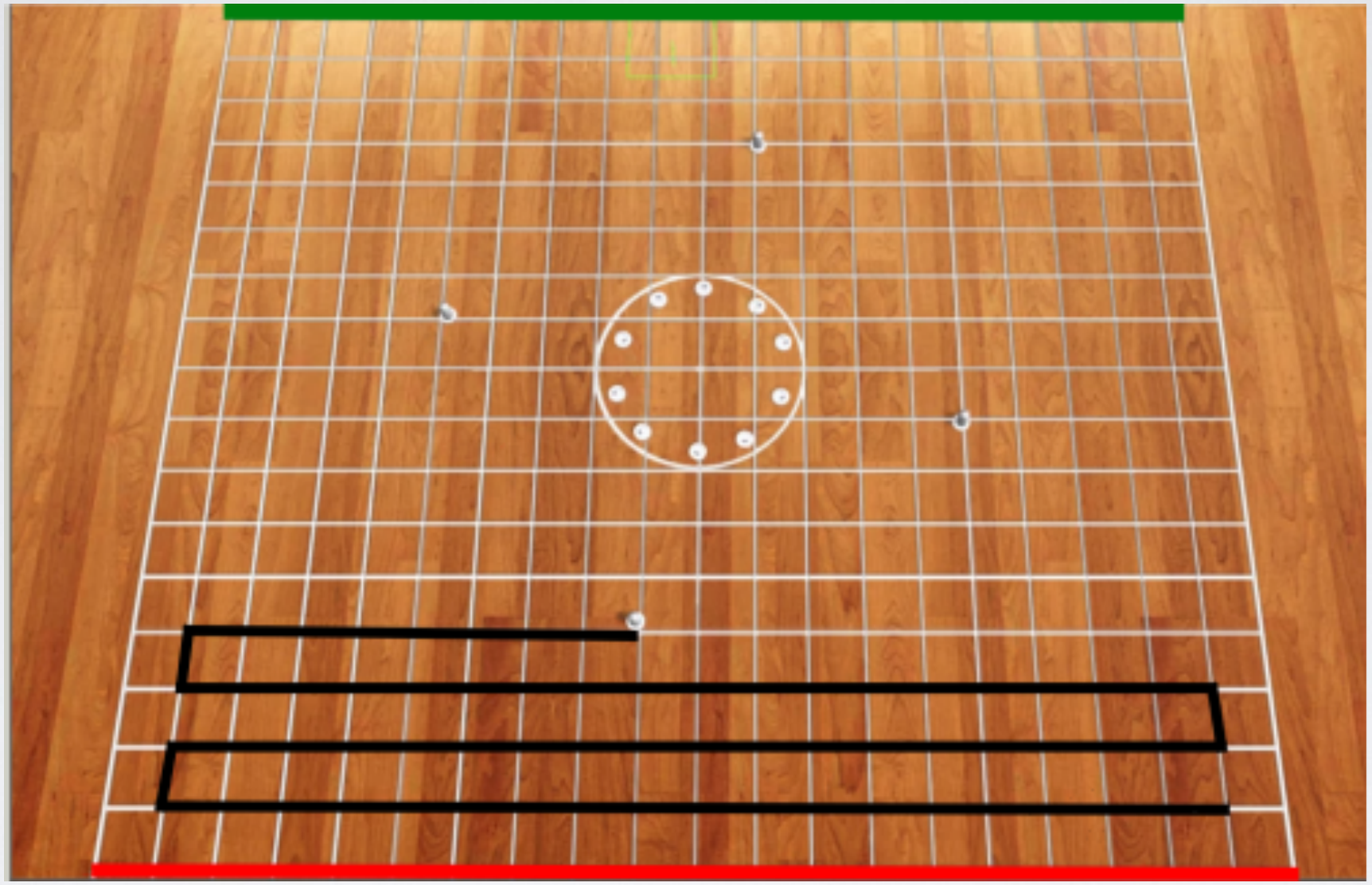
ORB-SLAM

OBJECT DETECTION AND TRACKING

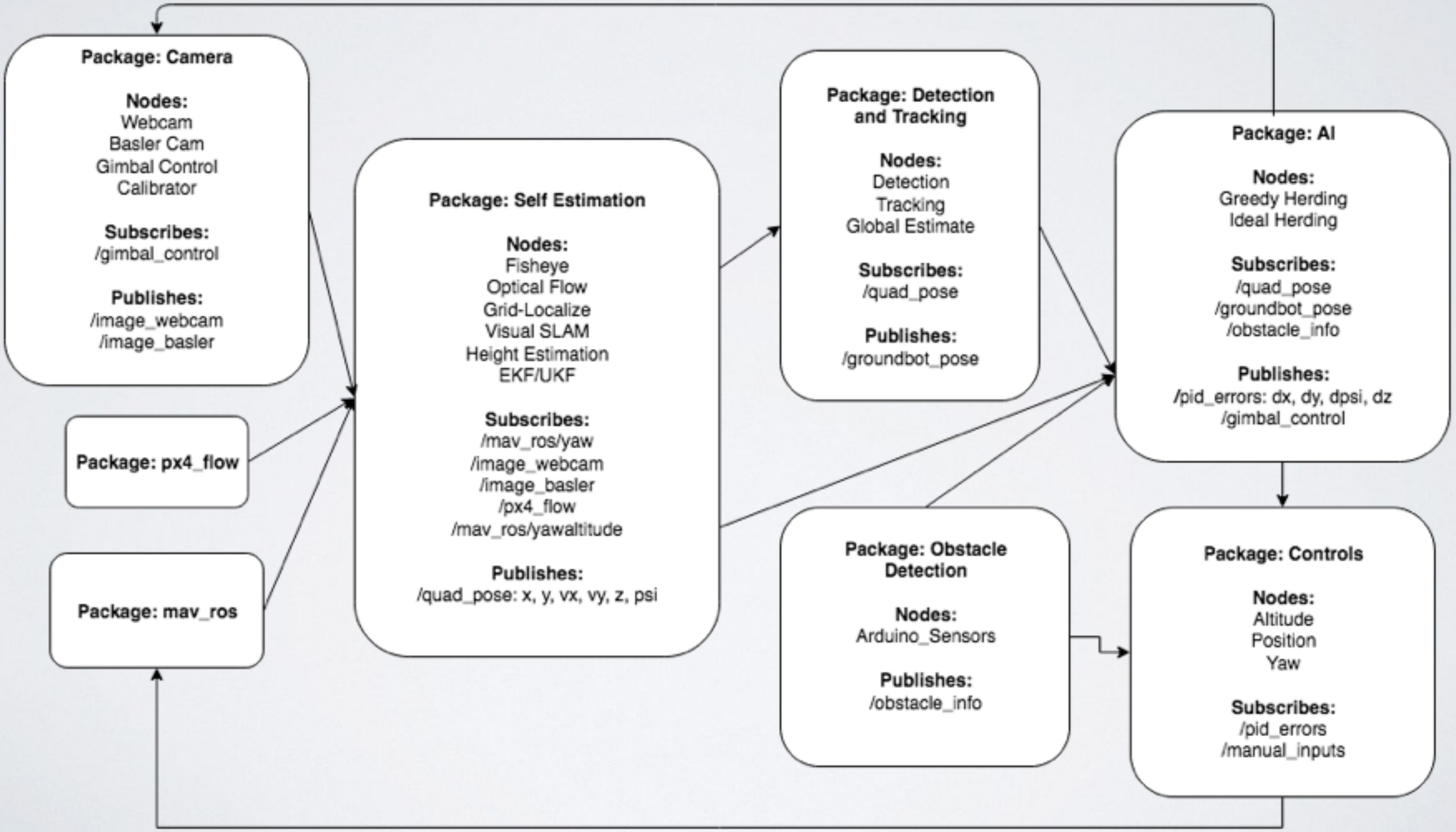
OBSTACLE AVOIDANCE



HERDING



ROS ARCHITECTURE



THANK YOU