A robot is composed of – Hardware: the machine – Software: the program that controls the machine (Robotics middleware like ROS, SLAM, CV, etc)

Robotics is the science of perceiving and manipulating the physical world through computer-controlled devices.

Robotics includes both aspects

Components: –  Sensors –  Controller –  Actuators

Act- wait sense – event decide

•  Key Ideas: – Everything is done by event handlers – A robot is a sprite – The world is the stage

Sensors have two kinds of errors –  Bias: a systemic deviation from the true value •  E.g., a clock that runs fast, or •  A thermostat that thinks its warmer than it is. –  Variability: random deviation from the true value •  E.g., static on the radio and •  Flickering low-oil sensor

•  Key Ideas: –  No matter how good a sensor is, it is imperfect –  Imperfect sensors introduce uncertainty – Our programs have to deal with the uncertainty –  Should our models include uncertainty?

In Follow-The-Line –  The angular velocity of the light sensor is quite fast –  This could cause the sensor to move over the black line too quickly to pick it up –  This would result in the robot losing the linedw