Sparta Robotics

Dynamixel library for NVIDIA Jetson TK1 (Adapted from Savage Electronics Dynamixel Library Arduino PDL)

begin()

Description
Initialize the serial communication.

Syntax
begin (serialPort, baudRate, dataPin);
begin (serialPort, baudRate);

Parameters
serialPort - serial device
baudRate - serial transmission in bps
dataPin - pin for data transmit and receive

Example
Mx28.begin("/dev/ttyTHS0", B1000000, 166);
Mx28.begin("/dev/ttyUSB0", B1000000);

disconnect()

Description
Deinitialize the serial communication.

Syntax
Disconnect ( );

Parameters
none

Example
Mx28.disconnect();

reset()

Description
Return to the factory settings of the servomotor.

Syntax
reset (ID);

Parameters
ID - identification number of the servomotor

Example
Mx28.reset(1);

ping()

Description
Send a question to the servo motor status.

Syntax
ping (ID);

Parameters
ID - identification number of the servomotor

Example
Mx28.ping(1);

setID()

Description
Change the ID of the servomotor.

Syntax
setID (ID, newID);

Parameters

ID - identification number of the servomotor
newID - new identification number of the servomotor

Example
Mx28.setID(1, 2);

setBD()

Description
Change the Baud Rate of the servomotor

Syntax
setBD (ID, baudRate);

Parameters
ID - identification number of the servomotor
baudRate - serial transmission speed in bps

Example
Mx28.setBD(1, 115200);

move()

Description
Move the actuator to the position indicated.

Syntax
move (ID, Position);

Parameters
ID - identification number of the servomotor
Position - servo position 0 to 4095 (0 to 360 degrees)

Example
Mx28.move(1, 2048);

moveSpeed()

Description
Move the actuator to the position indicated airspeed.

Syntax
moveSpeed (ID, Position, Speed);

Parameters
ID - identification number of the servomotor
Position - servo position 0 to 4095 (0 to 360 degrees)
Speed - speed that will move the servo 0 to 1023

Example
Mx28.moveSpeed(1, 2048, 1023);

moveDeg()

Description
Move the actuator to the position indicated (in degrees).

Syntax
move (ID, Degrees);

Parameters
ID - identification number of the servomotor
Degrees - servo position -180 to 180 in degrees

Example
Mx28.moveDeg(1, -45);

moveSpeedDeg()

Description
Move the actuator to the position (in degrees) indicated airspeed.

Syntax

moveSpeedDeg (ID, Degrees, Speed);

Parameters
ID - identification number of the servomotor
Degrees - servo position -180 to 180 in degrees
Speed - speed that will move the servo 0 to 1023

Example
Mx28.moveSpeed(1, -45, 1023);

setEndless()

Description
Enables or disables continuous mode servo motor rotation.

Syntax
setEndless (ID, Status);

Parameters
ID - identification number of the servomotor
Status - on or off the Endless (ON or OFF) mode

Example
Mx28.setEndless(1, ON);

turn()

Description
Servomotor rotates to the right or left and the speed indicated only if in continuous rotation mode.

Syntax
turn (ID, Side, Speed);

Parameters
ID - identification number of the servomotor
Side - direction in which to rotate (RIGHT or LEFT)
Speed - speed that will move the servo 0-1020

Example
Mx28.turn(1, LEFT, 1000);

moveRW()

Description
Save the instruction that moves the actuator to the position indicated.

Syntax
moveRW (ID, Position)

Parameters
ID - identification number of the servomotor
Position - servo position 0 to 4095 (0 to 360 degrees)

Example
Mx28.moveRW(1, 2048);

moveSpeedRW()

Description
Save the instruction that moves the actuator to the position indicated airspeed.

Syntax
moveSpeedRW (ID, Position, Speed)

Parameters
ID - identification number of the servomotor
Position - servo position 0 to 4095 (0 to 360 degrees)
Speed - speed that will move the servo 0 to 1023

Example
Mx28.moveSpeedRW(1, 2048, 1023);

action()

Description
Executes the instruction stored in the servomotor.

Syntax
action ( );

Parameters
none

Example
Mx28.action();

torqueStatus()

Description
Enables or disables the torque on the servomotor.

Syntax
torqueStatus (ID, Status);

Parameters
ID - identification number of the servomotor
Status - on or off the touch (ON or OFF)

Example
Mx28.torqueStatus(1, ON);

ledStatus()

Description
Turns the LED on the back of the servomotor.

Syntax
LEDStatus (ID, Status);

Parameters

ID - identification number of the servomotor
Status - on or off (ON or OFF) LED

Example
Mx28.ledStatus(1, ON);

readTemperature()

Description
Reads the internal temperature of the servomotor.

Syntax
readTemperature (ID);

Parameters
ID - identification number of the servomotor

Example
var = Mx28.readTemperature(1);

readVoltage()

Description
Reads the supply voltage of the servomotor.

Syntax
readVoltage (ID);

Parameters
ID - identification number of the servomotor

Example
var = Mx28.readVoltage(1);

readPosition()

Description
Reads the position in which the actuator is located.

Syntax
readPosition (ID);

Parameters
ID - identification number of the servomotor

Example
var = Mx28.readPosition(1);

readSpeed()

Description
Read the rpm of the servomotor.

Syntax
readSpeed (ID);

Parameters
ID - identification number of the servomotor

Example
var = Mx28.readSpeed(1);

readLoad()

Description
Read the current used by the servomotor.

Syntax
readLoad (ID);

Parameters
ID - identification number of the servomotor

Example
var = Mx28.readLoad(1);

setTempLimit()

Description
Configures a maximum operating temperature of the servomotor.

Syntax
setTempLimit (ID, Temperature);

Parameters
ID - identification number of the servomotor
Temperature - the maximum temperature to which the servo motor will work

Example
Mx28.setTempLimit(1, 80);

setAngleLimit()

Description
Sets a maximum angle CW and CCW operating servomotor.

Syntax
setTempLimit (ID, CW, CCW);

Parameters
ID - identification number of the servomotor
CW - maximum angle to clockwise
CCW - maximum angle against clockwise

Example
Mx28.setAngleLimit(1, 45, 45);

setVoltageLimit()

Description
Set a minimum and maximum operating voltage on the actuator.

Syntax
setVoltageLimit (ID, minVoltage, maxVoltage);

Parameters
ID - identification number of the servomotor
minVoltage - minimum operating voltage of the servomotor
maxVoltage - maximum operating voltage of the servomotor

Example
Mx28.setVoltageLimit(1, 70, 160);

setMaxTorque()

Description
Sets a maximum torque on the actuator.

Syntax
setMaxTorque (ID, Maxtorque);

Parameters
ID - identification number of the servomotor
Maxtorque - servomotor maximum torque (0-1023)

Example
Mx28.setMaxTorque(1, 1023);

setSRL()

Description
Sets the Status Return Level of servomotor.

Syntax
setSRL (ID, SRL);

Parameters
ID - identification number of the servomotor
SRL - (0 Return none), (read Return 1), (2 Return all)

Example
Mx28.setSRL(1, 2);

setRDT()

Description
Return Delay Time Sets the servomotor.

Syntax
setRDT (ID, RDT);

Parameters
ID - identification number of the servomotor
RDT - time information return (0-255) * 2us

Example
Mx28.setRDT(1, 255);

setLEDALarm()

Description
Set the alarm LED servomotor.

Syntax
setLEDAlarm (ID, LEDAlarm);

Parameters
ID - identification number of the servomotor
LEDAlarm - alarm LED (0-255)

Example
Mx28.setLEDAlarm(1, 255);

setShutdownAlarm()

Description
Set the alarm off the booster.

Syntax
setShutdownAlarm (ID, shutdownAlarm);

Parameters
ID - identification number of the servomotor
shutdownAlarm - alarm LED (0-255)

Example
Mx28.setShutdownAlarm(1, 255);

setCMargin()

Description
Compliance Margin Sets the servomotor.

Syntax
setCMargin (ID, CWCM, CCWCM);

Parameters
ID - identification number of the servomotor
CWCM - CW Compliance Margin (0-255)
CCWCM - CCW Compliance Margin (0-255)

Example
Mx28.setCMargin(1, 1, 1);

setCSlope()

Description
Set the servomotor Compliance Slop.

Syntax
setCSlope (ID, CWCS, CCWCS);

Parameters
ID - identification number of the servomotor
CWCS - CW Complaince Slope (0-255)
CCWCS - CCW Compliance Slope (0-255)

Example

Mx28.setCSlope(1, 64, 64);

setPunch()

Description
Punch Sets the maximum current of servomotor.

Syntax
setPunch (ID, Punch);

Parameters
ID - identification number of the servomotor
Punch - current in the servomotor (0-1023)

Example
Mx28.setPunch(1, 1023);

moving()

Description
Check or read if the servomotor is moving.

Syntax
moving (ID);

Parameters
ID - identification number of the servomotor

Example
Var = Mx28.moving(1);

lockRegister()

Description
Blocks 24 to 35 records of the servomotor

Syntax
lockRegister (ID);

Parameters

ID - identification number of the servomotor

Example

Var = Mx28.lockRegister(1);

RWStatus()

Description

Determines REG_RITE state servomotor.

Syntax

RWStatus (ID);

Parameters

ID - identification number of the servomotor

Example

Var = Mx28.RWStatus(1);