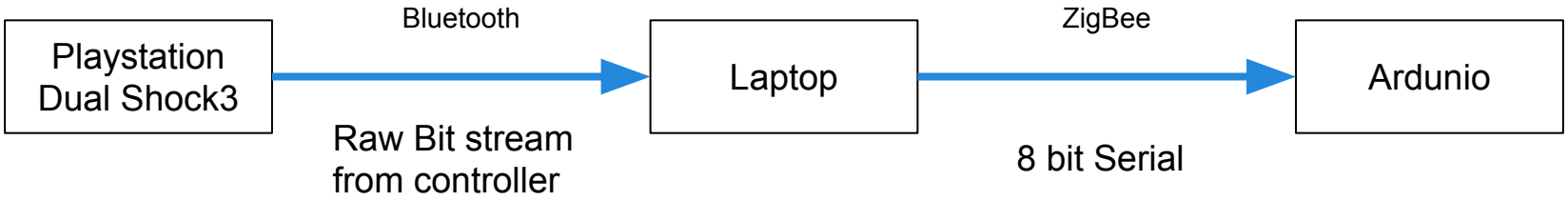
Robotics Controller

Control Flow



Threaded Java
1 Thread/Controller
1 Thread/main

What Works

- Full Control Flow path
    - Java code reads in controller data, using Bluetooth API
    - Java code communicates with Arduinos, using serial port to ZigBee
    - Ardunio code responds to all program commands

- Non differential drive, and separate aux motors
- Any function assigned to □, △, ○, and X

Whats Needed

1. Differential Drive
2. Analog Motor control
3. Create map of raw Dual Shock bit stream to button pushed
4. Expand Programmed Button responses
5. New containers
6. Any value added features
    a. RFID
    b. Score Board Integration
7. TEST, TEST, TEST and TEST

8 Bit ZigBee Serial

Decimal	Purpose
0	No Send
1-30	Robot 1 Definable Range
31-60	Robot 2 Definable Range
61-90	Robot 3 Definable Range
91-120	Robot 4 Definable Range
121-150	Robot 5 Definable Range
151-180	Robot 6 Definable Range
181-210	Robot 7 Definable Range
211-240	Robot 8 Definable Range
241-253	Global Unused
254	Global Stop Signal (Programmed, but unused)
255	Global Start Signal (Programmed, but unused)

- 8 Bit -> Decimal 0 to 255
- Each Robot will be programmed with a base bit
  - Robot 1 base = 1
  - Robot 2 base = 31
  - …
  - Robot 8 base = 211
- When a controller thread is created it is given the base value for it's associated robot and the world wide name of the controller.
  - This links a controller to a robot
  - No chance of interference
- Global Values can be used for anything we want.

Robot Range - Programmed As of now

Decimal	Button
1	Green Triangle
2	Red Circle
3	Purple X
4	Blue Square
5	D-pad Up
6	D-pad Right
7	D-pad Back
8	D-pad Left
9	Start

Future Robot Range

Button	Byte	Command
Left Stick 100%	Base	M1 - CW - 100
Left Stick 80%	Base + 1	M1 - CW - 80
Left Stick 60%	Base + 2	M1 - CW - 60
Left Stick 40%	Base + 3	M1 - CW - 40
Left Stick 20%	Base + 4	M1 - CW - 20
Left Stick -20%	Base + 5	M1 - CCW - 20
Left Stick -40%	Base + 6	M1 - CCW - 40
Left Stick -60%	Base + 7	M1 - CCW - 60
Left Stick -80%	Base + 8	M1 - CCW - 80
Left Stick -100%	Base + 9	M1 - CCW - 100

Future Robot Range - Cont.

Right Stick 100%	Base + 10	M2 - CCW - 100
Right Stick 80%	Base + 11	M2 - CCW - 80
Right Stick 60%	Base + 12	M2 - CCW - 60
Right Stick 40%	Base + 13	M2 - CCW - 40
Right Stick 20%	Base + 14	M2 - CCW - 20
Right Stick -20%	Base + 15	M2 - CW - 20
Right Stick -40%	Base + 16	M2 - CW - 40
Right Stick -60%	Base + 17	M2 - CW - 60
Right Stick -80%	Base + 18	M2 CW - 80
Right Stick -100%	Base + 19	M2 - CW - 100

Future Robot Range - Cont.

L1	Base + 20	Aux M1 - CW
L2	Base + 21	Aux M1 - CCW
R1	Base + 22	Aux M2 - C
R2	Base + 23	Aux M2 - CCW
X	Base + 24	Fire
Unused	Base + 25 - Base + 30	
Circle	Unused	Swap Directions
Square	Unused	Swap Sticks
Start	Unused	Reset to defaults
Up	Unused	Unused
Right	Unused	Unused
Down	Unused	Unused
Left	Unused	Unused
Triangle	Unused	Unused

Code Base

- Working version will be posted to Google Docs, when I get the right version sorted out.
- A golden version will remain with me.

Arduino Code Ex

JeremeyBlum.com

Youtube

Google