

Robotics & Automation

ENGT4314

Tutorial 8

Introduction to Aria.

Function calls are similar to Robios.

Classes:

```
ArSimpleConnector(int *argc, char **argv)
```

Initialises connection method for communicating between ARIA and the robot.

Functions:

```
parseArgs() parses the passed arguments above. Usually followed conditionally with logOptions(); Returns true if the arguments parsed correctly, and false if they are malformed. This error should be caught.
```

```
logOptions() Prints the arguments available to be used. Arguments can do things such as changing serial ports.
```

```
connectRobot(ArRobot *robot) Attempts to connect to the actual robot (e.g. via the serial port). Returns true if successful, false otherwise.
```

Aria

Is a static class, so there is no need to call the constructor. The only method needed here is `init()` which should be called once the robot has been connected to successfully.

ArRobot

Contains function that interface to the robot actuators and sensors. In this case the only features on the robot is the driving commands.

Functions:

```
enableMotors();
```

This is similar to the VW `init` and `start` functions in ROBIOS. Simply call this without parameters before using the motors.

```
disableMotors();
```

The opposite to above, call this when cleaning up after your program.

```
runAsync(bool stopRunIfNotConnected );
```

This will create a new thread that handles the processing of the robot commands. If you don't run Async when you use set drive functions

they will block your program execution until the process is complete. There is a design choice for you to make here. The parameter specifies if the thread should be destroyed when the connection to the robot is lost or disconnected. Typically for our application we want this to be true.

```
void setRotVel (double velocity)
    Sets the rotational velocity.
```

```
setHeading (double heading)
    Sets the heading.
```

```
void setVel (double velocity)
    Sets a single forward velocity
```

```
void setVel2 (double leftVelocity, double rightVelocity)
    Sets the velocity of the wheels independently.
```

```
void setDeltaHeading (double deltaHeading)
    Sets the delta heading.
```

For more information please see the example in the `aria.sln` on the dvd.