Aversive++

An Open Source C++ library to ease the development of robotic systems on microcontrollers
Developers++

- Master degree in computer science from ENSEIRB-MATECA
- Participate to Eurobot contest
- Hired as research engineer at INRIA
- Won Boost Your Code contest
Features++

- Multiplatform Hardware Abstraction Layer
- Simulator : SASIAE

- Design control systems (Filter API)
  - PID, Bang-Bang, etc...

- Actuator Sensor Abstraction (Device API)
  - Motor, servomotor, encoder, distance sensor

- “std::stream like” library (Stream API)
  - UART, I2C, SPI, TCP, ...
define the system's input and output...

```cpp
// Encoder devices
Encoder<s32> left_enc("leftEnc", &le);
Encoder<s32> right_enc("rightEnc", &re);

// Motor devices
Motor<s32> left_motor("leftMot", &lm);
Motor<s32> right_motor("rightMot", &rm);

// COMM
UartStream<0> io("io");
```
PidFilter id = PidFilter::identity();

PidFilter left_pid;
PidFilter right_pid;

DiffFilter left_diff;
DiffFilter right_diff;

MotorController left_cmot(left_motor, left_enc, id, left_diff, left_pid);
MotorController right_cmot(right_motor, right_enc, id, right_diff, right_pid);

Odometer odo(right_enc, left_enc);

PidFilter dist_pid;
PidFilter angle_pid;

RobotController robot(right_cmot, left_cmot, odo, id, id, id, dist_pid, id, id, angle_pid);

build your control system...
robot.setValue(Vect<2, s32>(dist,angle));

and just use it!
Conclusion++

Thanks for your attention!

Any question?

NO