Pollino Team Hungary

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1. Introduction

The Pollino Team Hungary is created by a electrical engineer and IT technician students of the University of Pécs Pollack Mihály Faculty of Engineering and IT[1]. Our team is interested in process automation and controls of product processing and logistic projects as well. That is the reason why we have chosen an intelligent and autonomous robotic system, called the Robotino. During the course of the different project problem observing and simulating are easy because of the excellent attributes of this system. The Festo Robotino View seems a great software to implement our ideas with the help of our imagination and development.

2. Results

In 2010 we won a Robotino Olympics II in Dunaújváros, Hungary, where the award was a chance given us to show our knowledge in RoboCup 2010 Singapore. On at competition we earned the fourth place. After that we participated in RoboCup 2011 Istanbul, where we earned a well-deserved third place. Unfortunately we could not take part in RoboCup 2012 Mexico because of the lack of financial resources. Nevertheless we have been working continously on our Robotino projects and developments in this period. This year our goal is to earn an award whether it be the first, second or the third place. In addition, the competition give us excellent opportunity to try our new programs, different algorythms processes and new developments in practice.

As a sign of our commitment we organize and manage every year the Baranya Open[2] competition in our hometown for students of age 14-22 every year.

3. Our recent projects

- Virtual robot developing

- Intelligent simulator with visualization

- Automatic, sensor based process control

- Communication solutions between autonomous systems

- Hardware production hall creation

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[1] Our university's website: http://pmmik.pte.hu/

[2] A competition. The main objective is to find newbie programmers on a basic level and get this talents involved mostly in automatic technologies and also in our main projects

4. Members of team

- Bence Domonkos

- Bence Nagy

- Tibor Malkó

- Tamás Slang

- Krisztián Tóth

- Preparation teacher: Péter Megyeri

Our team is continously changing, nowdays we have an electrical engineer, IT technicians and also high school students. We are programming in Robotino® View 2 and we are using custom function blocks as well.

5. One of Our Development

5.1. Pollino RobotSimulator Function Block Program Code

```
VOID ROBOTSIMULATOR::STEP (VOID){
    T1 = TIM.TV_SEC+(TIM.TV_USEC/1000000.0);
    GETTIMEOFDAY(&TIM, NULL);
    T2 = TIM.TV_SEC+(TIM.TV_USEC/1000000.0);
    C_TIME=T2-T1;
    IF (C_TIME > 10) {
        C_TIME=0;
        }
    CYCLE_TIME = C_TIME;
    SPEED = POW((POW (READINPUT("IN5").TOFLOAT() , 2) + POW(READINPUT("IN6").TOFLOAT() , 2)) , .5);
    DIR = ATAN2(READINPUT("IN6").TOFLOAT() , READINPUT("IN5").TOFLOAT());
    IF (!(READINPUT("IN4").TOBOOL())){
        POS_PHI = READOUTPUT("OUT3").TOFLOAT() + CYCLE_TIME * READINPUT("IN7").TOFLOAT();
        POS_X = READOUTPUT("OUT1").TOFLOAT() + CYCLE_TIME * SPEED * COS(POS_PHI * PI / 180 + DIR);
        POS_Y = READOUTPUT("OUT2").TOFLOAT() + CYCLE_TIME * SPEED * SIN(POS_PHI * PI / 180 + DIR);
    }
    ELSE {
        POS_X = READINPUT("IN1").TOFLOAT();
        POS_Y = READINPUT("IN2").TOFLOAT();          POS_PHI = READINPUT("IN3").TOFLOAT();
    }
    WHILE (POS_PHI <= -180){
        POS_PHI=POS_PHI+360;
    }
    WHILE (POS_PHI > 180){
        POS_PHI=POS_PHI-360;
    }
}
```

This Pollino RobotSimulator is our newest development. That's helping us to improve our project in a simulation environment.

Common Robotino Navigation and Drive system
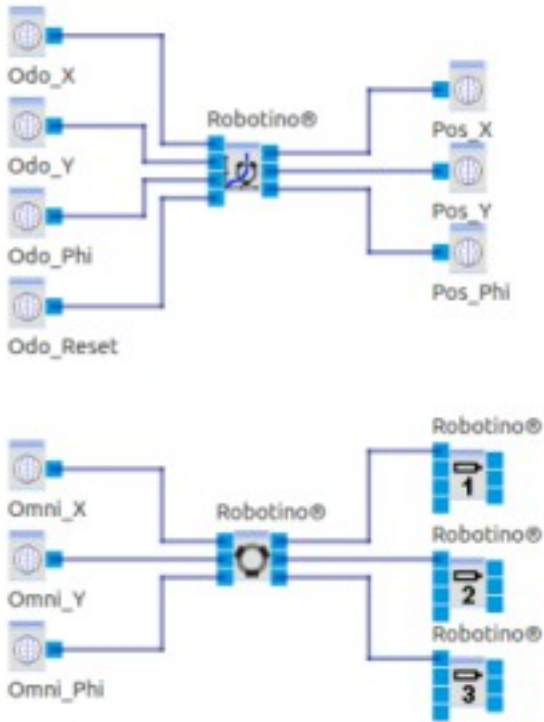
Pollino RobotSimulator
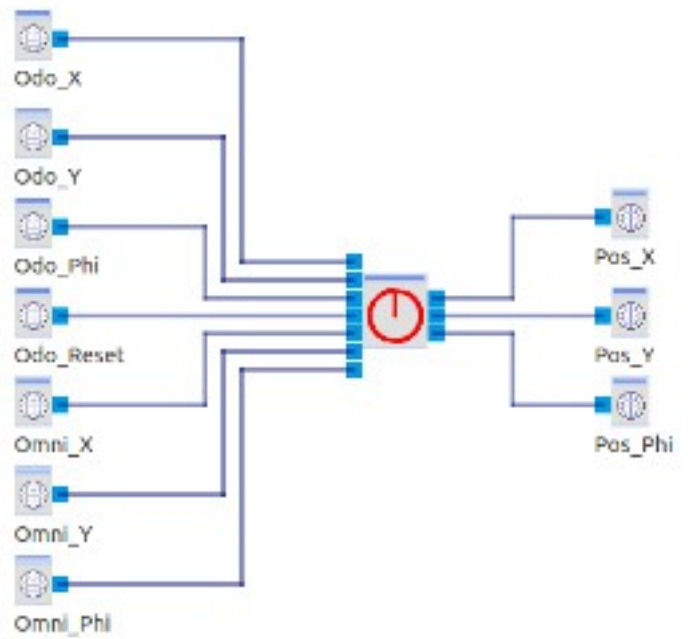
6. Baranya Open

This photo captured on 28th February in Pécs on Baranya Open.