Design of a reconfigurable intelligent system sandbox

V1.0

**Theme**

A scaled model sandbox of a “CITY” with intelligent systems

**Components**

A model manufacturing base

A car assembly line

An unmanned transportation system

Supply centers

Robots

**Building blocks**

Makeblock, framework with sensors, controllers, and actuators

Microduino, embedded system with sensors and controllers

Power Tech, robotic modular system

DeFacto, fantastic 3D printed structures

**Objects**

*s*, LEGO block 2x2 (or similar easy-to-assemble block)

*b*, LEGO block 2x4 (or similar easy-to-assemble block)

*p*, product assembled by *s* and *b*

*t*, a truck assembled by the car line

**Functional description**

* A manufacturing base
  + Two lines feed two kinds of LEGO blocks *s* and *b*.
  + A robotic arm assembles one block to another, making a *p*.
  + Another robotic arm moves the *p* to the third assembly line
  + End of the third line, a third robot moves the *p* to a *t*
* An unmanned transportation system
  + The truck *t* picks up the product *p* at the end of the manufacturing base
  + Guided by the black track on the sandbox to move around
  + The truck transports p to the supply center
  + A robot moves *p* to the supply center slot