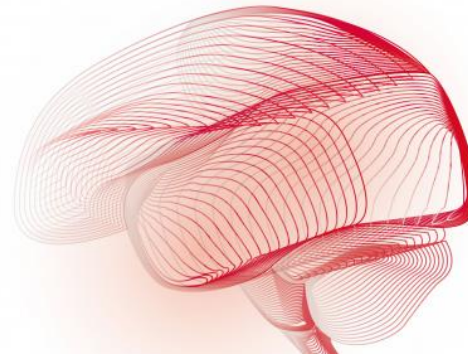# MAD AUTOMATION SRL

►*SOFTWARE BRAIN 4.0*

BRAIN 4.0
EVERYTHING IS CONNECTED

ITALY HEADQUARTERS
Mad Automation Srl
Via Malpasso 15, 52037 Sansepolcro (AR) – ITALY
Tel. +39 0575 720043   **Fax.** +39 0575 721680
VAT No. IT01900280510
Cap.Soc. € 500.000,00 i.v.

USA BRANCH OFFICE
Mad Automation America, Inc.
5, Cheryl Lane Boonton Township
New Jersey 07005 – USA
Phone. +1 646 939 1721

info@madautomation.it
www.madautomation.it

Mad Automation®
HANDLING & PACKAGING SOLUTIONS

SOFTWARE BRAIN 4.0 –
### *Introduction 1/2*

BRAIN 4.0
EVERYTHING IS CONNECTED

The **Brain 4.0** machine supervision software, is a **scalable software package**. By means of a centralized production process and logistics control it optimizes the Companies' efficiency.

Entirely developed in-house, its main feature is the possibility **to be adapted** to the customers' machines and to be tailored to the customers' production goals.

By using Brain 4.0 the customer will: fully control the whole production process and avoid the lack of flexibility normally caused by software supplied by general software houses; **make sure that machines, devices, databases and software all communicate in the same language thanks to a common "Brain".**
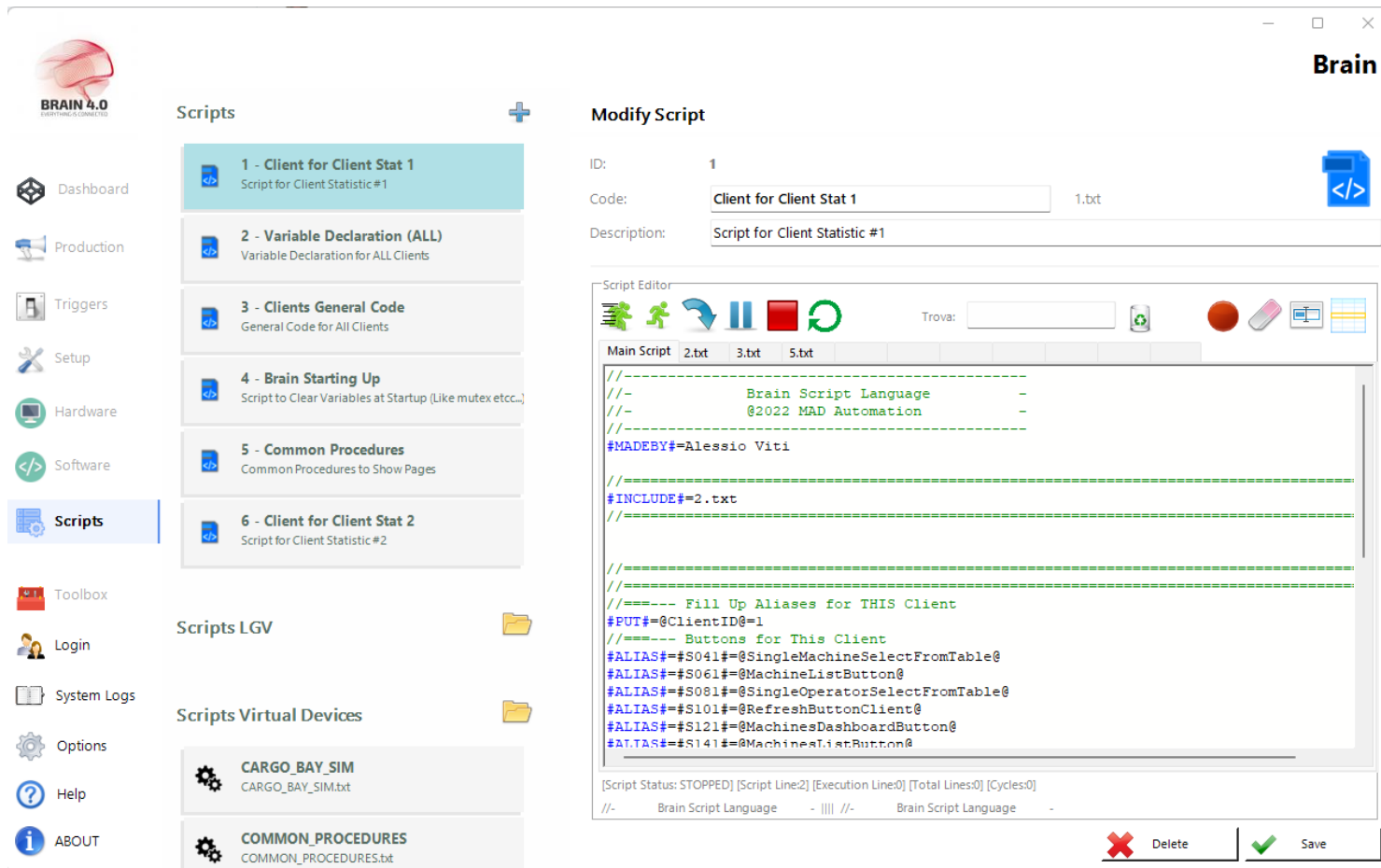
SOFTWARE BRAIN 4.0 –
Introduction 2/2

BRAIN 4.0
EVERYTHING IS CONNECTED
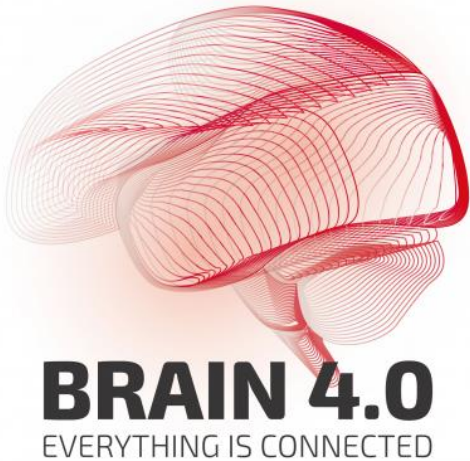
Big Corporations can create a whole network of interconnected "Brains" controlled by one **"Master Brain".** If Brain is the head, the **Clients** are the arms of the system. They are remote interfaces to control the procedures.

For instance you can create Clients to launch and control the production from a **"Control Room".** This way it is possible to take timely actions in case of problems on the line.

Brain can handle specific production orders on every single machine. Production orders are usually generated by means of file inputs or through data generated on the server. Once the order is available to Brain **it sends both data and recipes to every single machine composing the line** and it makes sure the production quantities are respected.

SOFTWARE BRAIN 4.0 –
Script Language

Brain features a **script language** allowing to execute procedures and complex functions with a limited number of instructions. The editor allows the ode debug in real time a step by step execution and the solution to problems in a really short time. All the hardware and software devices in the network, share the same variables and functions, so **machines communicate with each other seamlessly and in real time.**
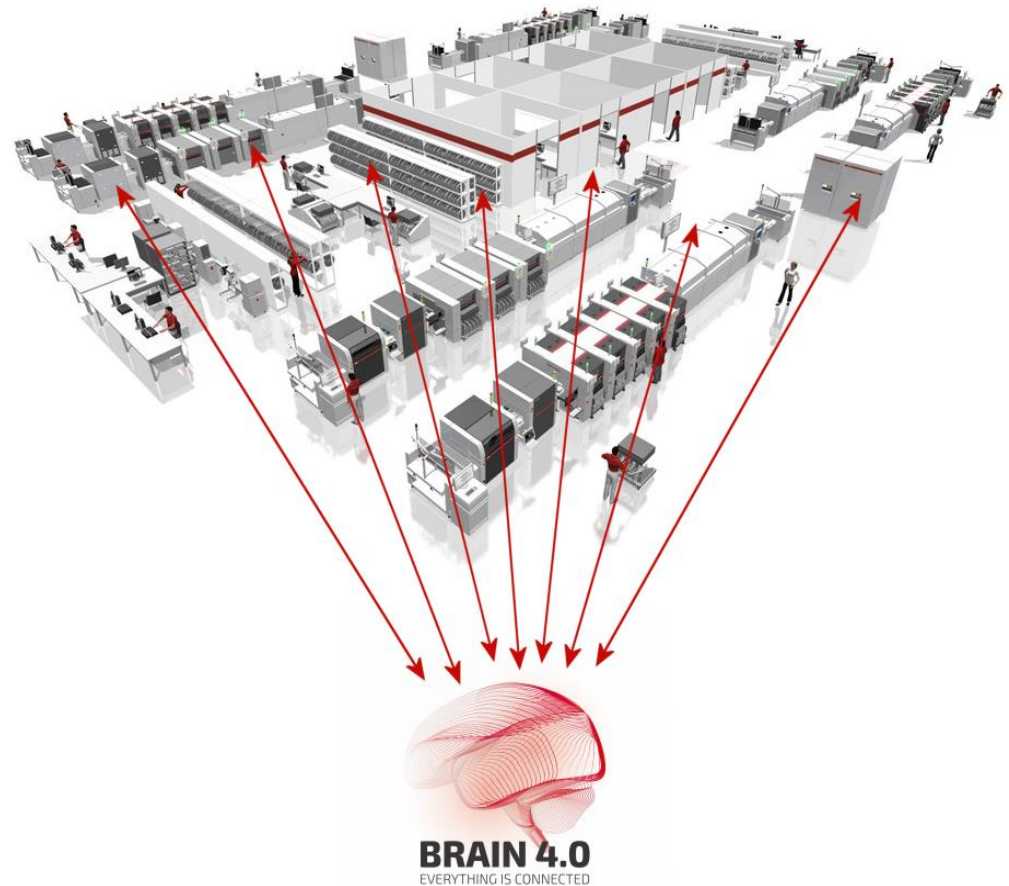
SOFTWARE BRAIN 4.0 –
Hardware and Software

Basically, Brain has the ability to "connect" and exchange information with a wide variety of hardware and software devices:

⚙️ **HARDWARE**	🖥️ **SOFTWARE**
Mad Automation Machines	Brain Clients
Third Party Machines	Virtual Devices
Barcode Readers	Web Server
Handheld Readers	Ethernet Server
Cameras	Folder Scanner
Palletizers	Built in WMS
Scales	Built in Traffic Manager
Metal Detectors	Connection to MDB, TXT, XLS databases
Labelers	Connection to SQL Servers (Oracle, SAP, etc.)

SOFTWARE BRAIN 4.0 – *Structure*

Brain allows you to create **personalized interfaces** for use in Brain Clients. Each customer can create their own HMI on the fly, modify it and implement without disrupting production or Brain Server.

Mad Automation ®
HANDLING & PACKAGING SOLUTIONS

ESSECO
G · R · O · U · P

Production flow *BEFORE* Mad's Brain 4.0 installation

Order went into SAP

⬇

Everyday they had to print the production orders and give them to the operators

⬇

Operators selected the recipe in each machine with information about the Article, production order ID ecc..

Production flow *AFTER* Mad's Brain 4.0 installation

| Brain takes all information about production from their server or their production software management such as SAP |
| --- |

⬇

Brain sends all information and recipes to each machine automatically. The production's data are handled by Brain 4.0

⬇

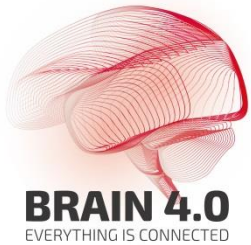| After production, brain writes back to Server all information (**Statistic Dashboards for Management**) |
| --- |

SOFTWARE BRAIN 4.0 – *Statistic Dashboards for Management*

Brain can be used also to create Statistic Dashboards for Management as you can see in the following configuration:
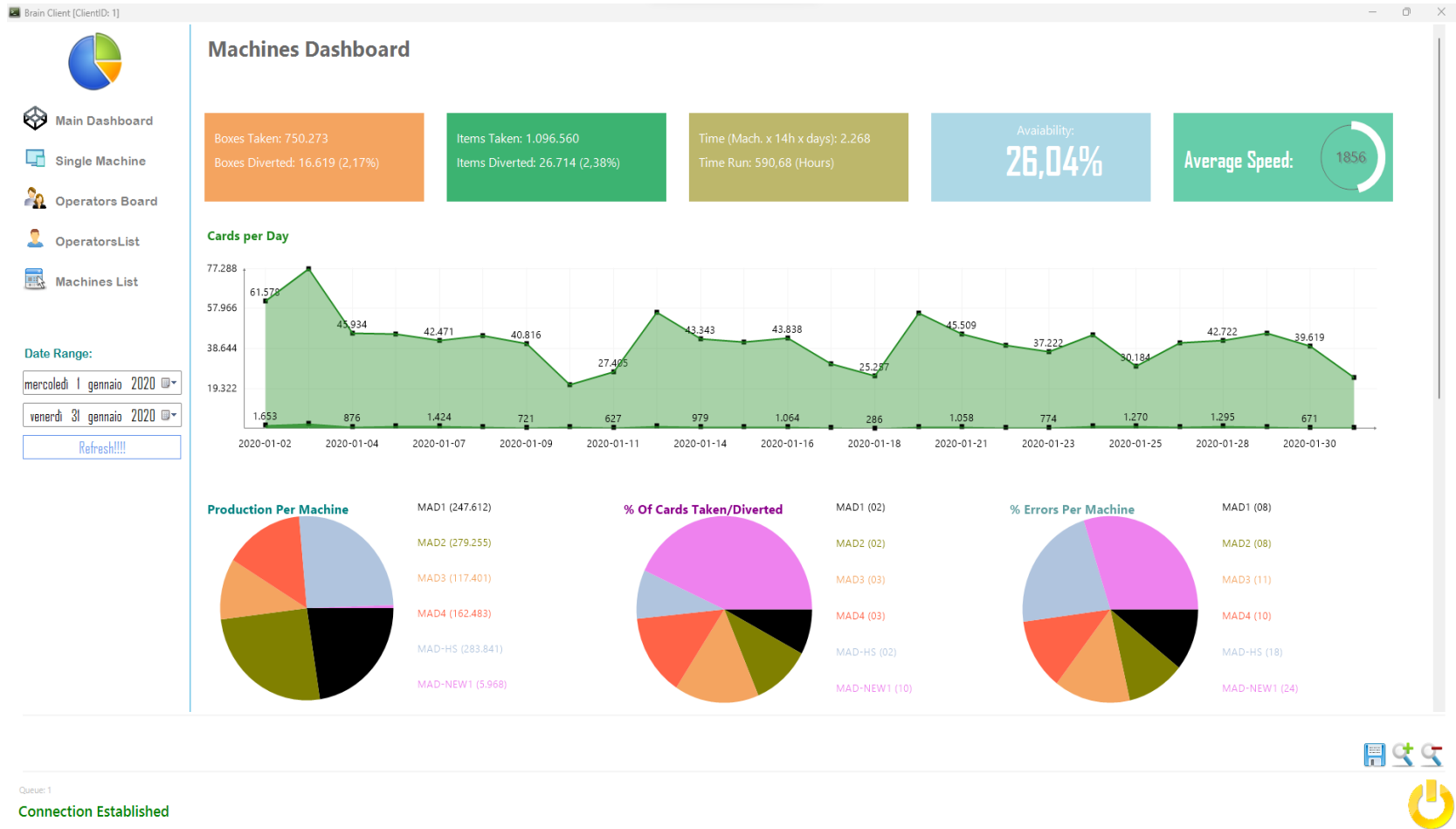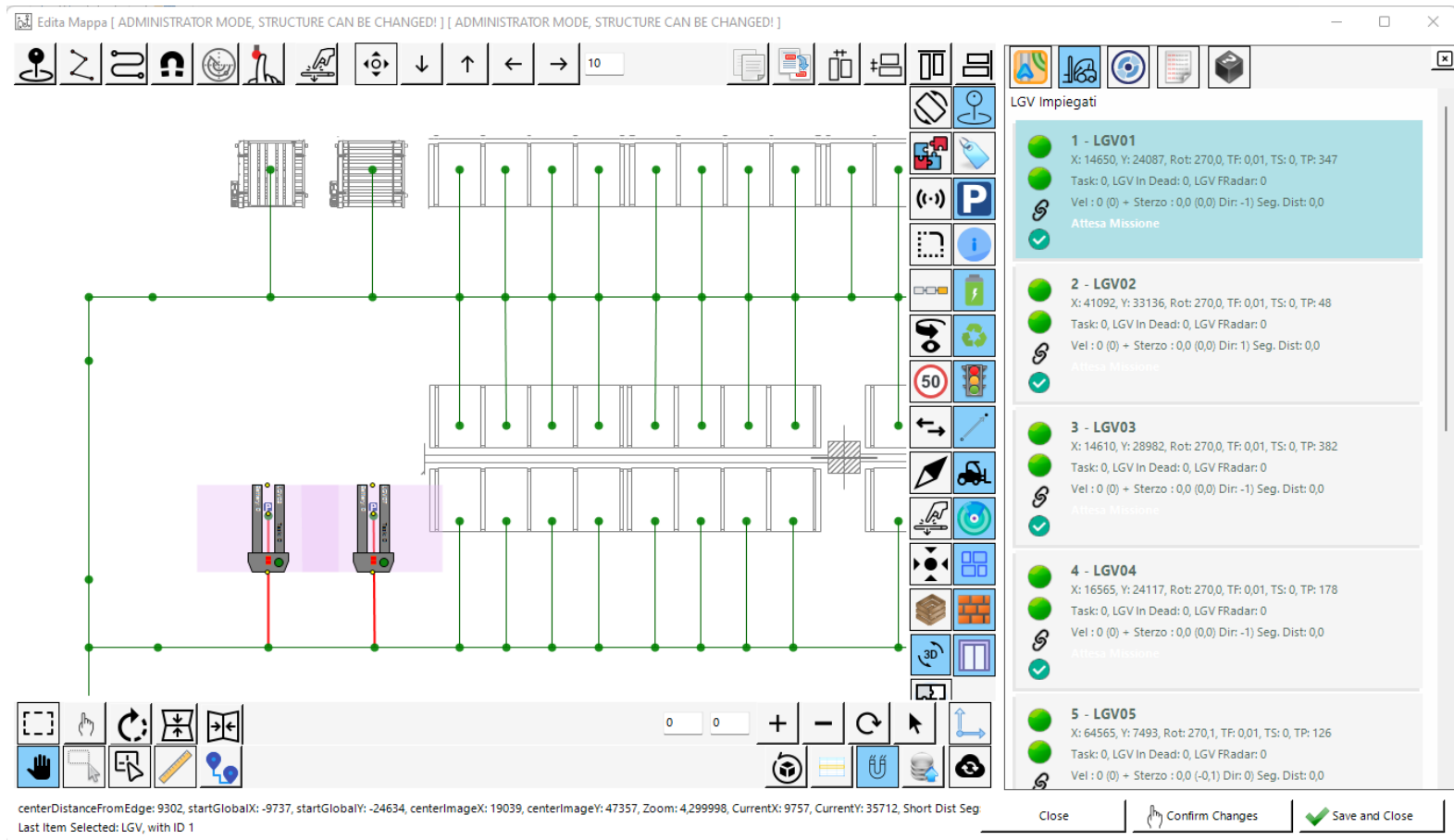
SOFTWARE BRAIN 4.0 –
LGVs 1/2

❑ **Built in CAD for map design**
  ▪ No Autocad license required
  ▪ Extremely easy to use

❑ **On-The-Fly map change**
  ▪ No need to shutdown system for map changes
  ▪ LGV will receive new map automatically at next task

❑ **Auto-Realignments of vehicles**
  ▪ Vehicle are able to return in path automatically
  ▪ Vehicles are able to adapt also to uneven floors

❑ **Advanced Traffic Jams Management**
  ▪ Advanced "AI" to solve also complicated Traffic Jams

❑ **Tasks-Reallocation**
  ▪ Automatically task-switching depending on path distance

SOFTWARE BRAIN 4.0 –
LGVs 2/2

EXEMPLE OF LGVs' MAP

The Script Manager (SM) is Brain's core. By means of powerful fully customizable functions it allows the creation and management of decisional logics to supervise all operations of a modern production plant. The SM can communicate with any system connected with the Plant Manager and to control it, such as the LGV fleet, the warehouse, the palletizers etc… The Script Manager also allows to create bespoke production planning rules.

Mad's fully customizable modules are:

► **Master Brain (MB)** is the module coordinating all activities according to the Industry 4.0 logic. MB controls and executes all the processes within the production line.

►The **Client Manager (CM)** allows to create customized HMI interfaces. The Designer can create and modify OTA (over the air) all the plant's interfaces be it control panels or statistics and administrative reports HMIs. All the HMIs can be defined in their operational functions and customized to every single operator.

11

► The **Warehouse Management System (WMS)** is specifically conceived to control the production facilities' internal logistic processes. It is an integrated solution that allows to manage all automated and manual operations. The WMS controls multiple warehouses, it optimizes the products' location and their transfer to a new spot to fine tune the LGVs' flux.

► The **Plant Manager (PM)** is the integration, communication and control module for all the automatic systems composing the line. The module can communicate with both Mad Automation's machinery and all other machines and devices. PM can also provide to the ERP or to third party software all the variables and the statuses of every single section of the line.

SOFTWARE BRAIN 4.0 –
MODULES 3/3

BRAIN 4.0
EVERYTHING IS CONNECTED

►The **CT (Complete Traceability)** module's main purpose is to track down all products in the production line. The customer is thus able to control the products' quality and conformity from the beginning down to the case and the pallet.

► **ETU (Easy To Use)** is an user friendly graphic interface allowing the operator to supervise the production line and to take timely actions in case of problems. ETU also grants the perfect operation of the remote service, by means of system alarms and an IP camera, Mad's technicians get malfunction warnings from the system and are able to solve them in real time.

Thanks for your attention