The IMCS includes three main parts:

1. **Power Supervisor Unit (PSU) one for each application.** Its main goal is to control the Emergency Stop and Enable wired loops but also power supplies.

2. **Integrated and versatile Intelligent Motion Control Unit (IMCU) one for each actuator.** In this case, the IMCU combines all functions necessary to "local/individual" control of one actuator, including: **DSP (PIC32MK) and CPLD, Power amplifier** in DC or PWM technologies and several **Communication** interfaces.

3. **Accessories** as back planes, standard rack, connectors etc.

The **IMCS** is a cost and time effective solution to implement complex and high performance motion control/test systems or prototypes.

It constitutes a family of **ready-to-use** hardware and firmware components. A bespoke solution can be quickly and easily assembled from these components, corresponding to a particular combination of actuators and sensors.

The IMCU includes:

1. **Common MAIN** board including floating-point DSP (PIC32MK) and (CPLD) to interface external mezzanine boards and power amplifier.

2. **Customized MEZZanine** to interface the particular sensors such as resolver, LVDT, incremental etc. for a specific application.

3. **Range of Power Amplifier** (s) (linear or PWM) for voice-coil, Brushless, step, DC and AC motors. It includes analogue measurements and several configurable protections.

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The **PSU** includes:

1. Internal supplies for electronic

2. Enable and State loops management and interconnection (CPLD) with power supply control

3. Power management including DC or AC relay

4. **Isolated digital I/O** applied to interface limits switches, emergency button, additional relays etc.

5. **On/Off** and state of Enable/State Loops to be connected to the Host, PMAC, Galil, PLC etc.

6. Internal (rack) temperature control

7. Interconnection with Raspberry Pi to provide Ethernet, Web micro-server, USB etc.