

Extensions - Colour LED Communication Turret

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The Colour LED Communication Turret is part of a visual communications system currently being developed by the Laboratory of Intelligent Systems (LIS) at EPFL. The LED Turret is composed of 8 sets of 3-colour Light Emitting Diodes (LEDs), each set containing a blue, red and green LED. These three colours can be mixed together at different strengths to produce hundreds of different colours in any pattern imaginable. The LEDs are all controlled using 24 separate Pulse Width Modulated (PWM) signals generated by an on-board PIC18F6722 (Microchip) microcontroller. The Colour LED Communication Turret circuit board with side-mounted LEDs

The firmware on the PIC can control each LED individually for maximum flexibility, or in a synchronised fashion to send the same signal from every angle. The user simply has to set a few parameters (such as the maximum brightness, blinking period, and rising slope) through the I2C interface, and the firmware then generates the PWM signals by itself!

Some of the many colours that can be produced by the LED Turret

The LED Turret can also display different colours on each LED group at the same time

The other part of the visual communication system is an omni-directional camera turret that is used to read signals produced by other robots' LED turrets. This camera turret is currently in prototype development at LIS.

Detailed schematics and PCB gerber files for the LED Turret will soon be posted on the Download Page .

This extension was designed at the Laboratory of Intelligent Systems (LIS) at EPFL.