

PCBWay 11th Badge Design Contest Submission

Design Concept: Innovation Lightbulb



Design Elements

1. Lightbulb Shape:

- Represents innovation and ideas - the "light-bulb moment".
- Features a top tab for lanyard attachment when used as a badge.
- Complex PCB cut shape demonstrates PCBWay's precision manufacturing capabilities.

2. Number "11" Integration:

- The "11" appears as the lightbulb filament holders.
- Created using the silkscreen process to showcase PCB manufacturing techniques.

3. PCBWay Branding:

- PCBWay logo positioned at the top in gold ENIG finish.
- Symbolises how PCBWay's services shine above others in the industry.

4. Cultural Elements - Year of the Wood Snake (2025):

- Snake design forms the E27 lightbulb thread.
- Enhanced with exposed gold ENIG finish.
- Chinese Pine & Bamboo trees represent the "wood" element.
- Trees showcase PCBWay's new UV printing capabilities released last year.

5. **Personal Touch:**

- My logo incorporated as the lightbulb filament in a cog/gear pattern using LEDs.
- Logo also appears on the back of the board as a reference point.
- Symbolises our ongoing business relationship with PCBWay.

Technical Specifications

- **Size:** Under 100x100mm for affordable manufacturing using PCBWay's prototyping pricing.
- **Components:**
 - STM8 microcontroller for control logic.
 - Touch-sensor IC for interaction.
 - Voltage regulator for power management.
 - WS2812B-based programmable RGB LEDs

Interactive Functionality

When you hold the badge by the gold snake (such as with your thumb), the badge activates:

1. **Touch Activation:** LEDs forming the cog/gear shape in the lightbulb filament illuminate.
2. **Animation:** The cog shape slowly rotates like a gear turning in a machine.
3. **Programmable Patterns:** The WS2812B LEDs can be customised to display:
 - Rainbow patterns for entertainment events.
 - Green for PCBWay and "wood" element.
 - Red for fire, good fortune and joy.
 - National colours (such as green & gold for Australia).
 - Custom patterns in the 14×2 LED grid, like a snake animation.

Implementation Details

The design will be completed with:

1. Hand-assembly using the MiniWare MHP50 from the PCBWay Store, demonstrating that PCBWay offers more than just PCB services.
2. Arduino programming for accessibility and ease of modification.

3. Open-source code sharing via PCBWay Shared Projects and GitHub.

Design Significance

Why This Design Matters to Me

- **Business Partnership:** PCBWay has been my important business partner since 2020. For five years, I've valued their superior customer service and product quality.
- **Cultural Respect:** I have strong appreciation for cultural traditions like the Year of the Wood Snake, especially after visiting China in 2014.
- **Maker Spirit:** As an inventor and entrepreneur, I connect with the lightbulb symbol of innovation. Like many makers, I enjoy DIY projects - programming and assembling components myself, including the use of tools from PCBWay's Modules Store
- **Community Values:** I believe in open source and community engagement, values that PCBWay also embraces. This is why I'll share the code on PCBWay Shared Projects and GitHub.
- **Human Connection:** The interactive touch aspect encourages discussion and interaction between individuals, bringing people together beyond digital communication.

What PCBWay Represents to Me

PCBWay represents excellence in manufacturing, customer service, and community support. Their precision, reliability, and willingness to embrace new technologies have made them an invaluable partner for creators and makers worldwide.

Message This Badge Conveys

This badge conveys respect, creativity, community, and quality—values shared by all makers who use PCBWay services. It celebrates 11 years of PCBWay innovation while looking toward future possibilities, showing how technological creativity can connect with cultural appreciation.

Animated Display Preview

Please see

- GIF: <https://plati.ma/go/kiv>
- MP4: <https://plati.ma/go/7jrj>

Note: Final images and videos of the completed and functioning product will be provided once assembly is complete.