LITTLEVGL GRAPHIC LIBRARY FOR EMBEDDED SYSTEMS

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Abstract: LittlevGL is an open source C library for creating graphical user interfaces (GUIs) for embedded systems. Ideal for computing devices with low processing power, low memory requirements. The library includes additional tools such as: hardware interrupt handlers, virtual keyboard, support for touch screens, use of a framebuffer (for Linux embedded).

Keywords: LittlevGL, graphics library, embedded systems.

LittlevGL is a free open source graphics library that provides everything you need to create an embedded graphical interface with user-friendly graphics, beautiful visuals and low memory footprint.

This library supports all the basic graphic elements included in any visual program. It is worth noting that the composition includes specific elements that are not included in the standard set of objects of other libraries, these are line meter (Figure 1) and guage (Figure 2).
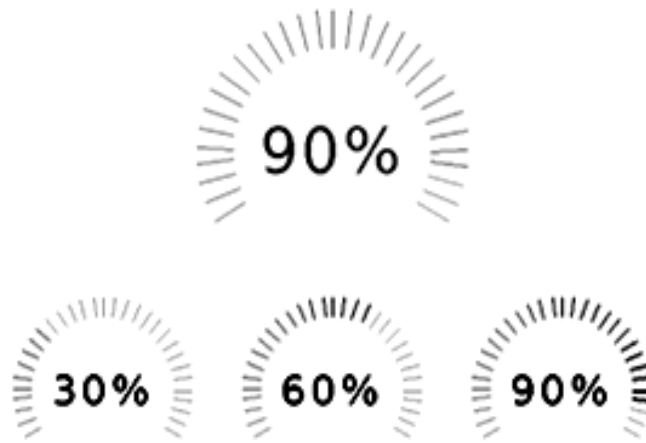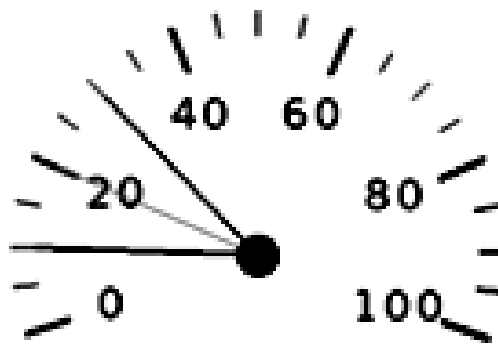
Fig. 1. Line meter

Fig. 2. Guage

Benefits:

1. Open source. Complete freedom of action, the ability to modify existing graphic objects.

2. Low requirement for computing power. This library is designed primarily for embedded systems.

3. Small amount of memory. Embedded systems (controllers, single board computers) do not have a lot of memory.

4. Examples. The official site contains a large number of projects created using the LittlevGL library.

5. Selecting a means of withdrawal. It is possible to output an image to a framebuffer.

6. Emulation. When installing SDL on a host computer, it is possible to output graphics on the host machine, later with cross-compiling the project, you can run it on the target machine. This is a very big advantage over other libraries.

Disadvantages:

1. Image processing. If necessary, display images,

the developer will face a number of problems. The first is the need to convert an image using the Image Convertor tool into an array of pixels.

2. Fonts. Initially, the library uses a small number of fonts, but it is possible to add a new one specifying its size (in pixels), for this you need to convert the font in TFT format into an array of pixels using the Font Converter. Add font name to lv_conf.h.

3. Lack of scaling. The position of each element is set manually. If you change the size of the screen, you have to change the coordinates of all objects.

Conclusion: The LittlevGL graphics library is a powerful tool for developing primitive windowing applications.

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