Software Architecture of Embedded System

An Embedded software Architecture is divided into multiple layers.

The three important layers of Embedded System are:

- Application Layer
- Middleware layer
- Firmware layer

Application Layer:-

- Application layer is mostly written in high level programming languages such as C,C++,Java with GUI support.
- Application layer interacts with the middleware API(Application Programming Interface) to get any task done.

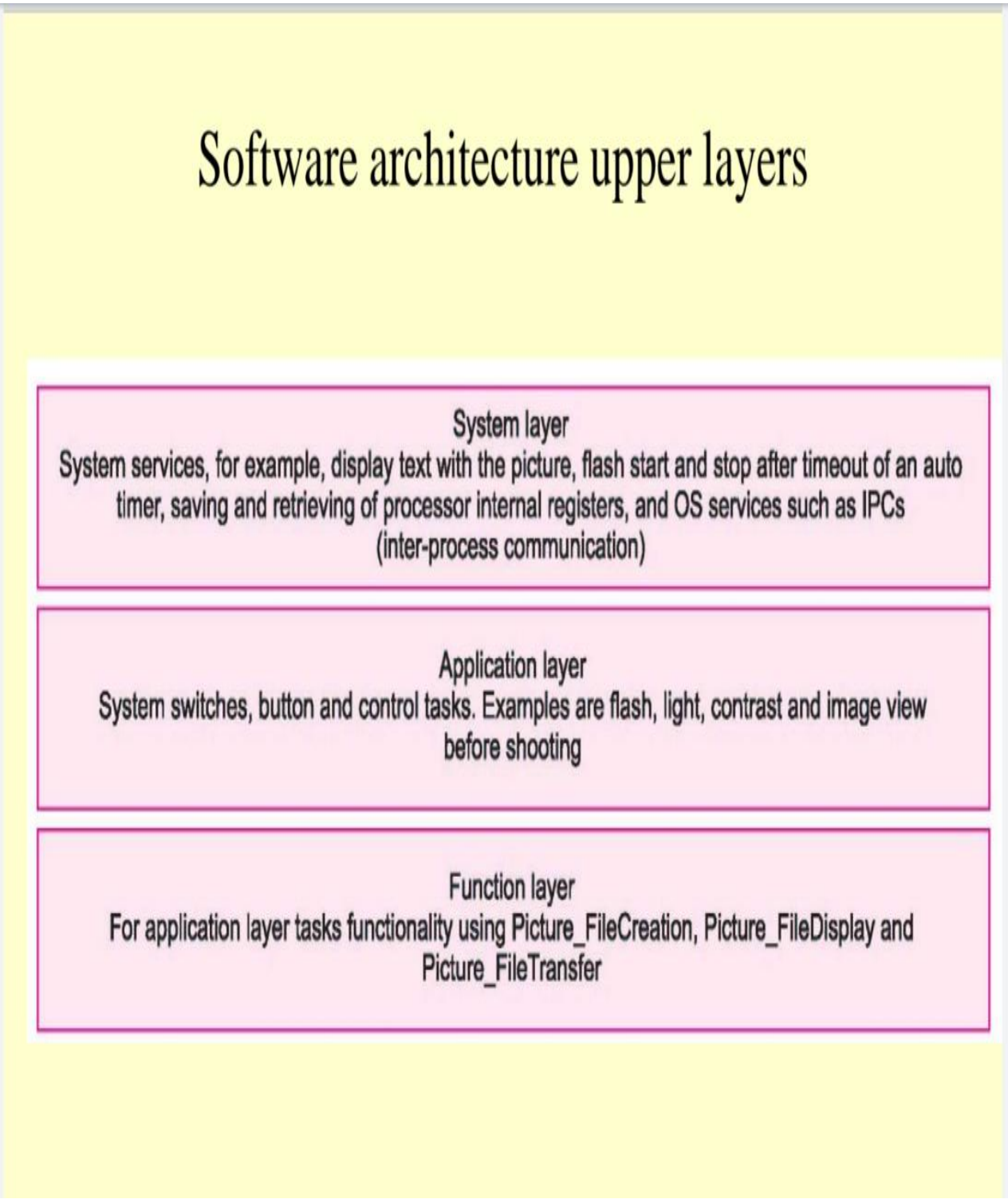
Middleware Layer:-

- Middleware layer is mostly written in C++,C with no GUI support.
- Middleware layer acts like an interface between Application and Firmware layer and establishes the communication.
- Middleware exposes the set of API functions in order to use the services offered by the middleware.
- It is responsible to handle requests from upper and lower layer.

Firmware Layer:-

- The Firmware is written mostly using C programming language.
- In order to perform a specified task Firmware exposes to Application API that the middleware calls.

Software Architecture of Digital Camera



Software architecture lower layers

Presentation layer

Standard access to image file, examples are the default settings of image contrast, resolution, and outputs, display color setting, sound of clicks, time and date display, dot-matrix or touchscreen driver, ADC output format and data outputs

Control layer

Controller_Tasks, timer control and real-time control modules

Base layer

Standard access to the internal devices in the microcontroller. Internal device examples are timer, real-time clock, SI (serial interface), ADC, USB port

Digital camera hardware architecture