



## A paradigm shift in eHealth care products designed using Lumissil Smart Video Processors



### INTRODUCTION

eHealth refers to the use of technologies, such as electronic devices, computerized health records, telemedicine, and mobile health apps, to improve healthcare delivery and support patient self-management. It encompasses a wide range of tools and services that can be used to improve communication between healthcare providers, enhance access to medical information and resources, and support patient engagement and self-care.

In this newsletter article we will focus on the rapidly growing field of electronic devices to support eHealth and where Lumissil Smart Video processors can offer exceptional value added benefits.

There are a variety of smart camera devices supporting eHealth.

1. Telemedicine such as smart video conferencing, special cameras for imaging body parts, also next generation cameras using IR can indirectly measure vital signs by measuring blood flow of the face.
2. Imaging devices in the hospital such as Xray, corneal topographer [cornea inspection] and scopes designed to enter the body.
3. Patient management such as smart medicine dispenser, cameras monitoring a patient in an ICU bed looking for movements or bed exits or monitoring patient arrival and tracking throughout a hospital.

A recent example of edge based AI for health care is an IoT eHealth camera. This AI powered camera is designed to look in the nose, ear, or throat. AI guidance technology ensures good data every use. Many major

hospital systems like Stanford Medicine, Sutter Health, Kaiser Permanente, Henry Ford Health – just to name a few are adopting this technology.



Other application examples of eHealth products:

- A smart medication dispenser is a device that helps manage and dispense medications according to a set schedule. It can be programmed by a healthcare provider or the user, and typically has features such as automatic reminders, dose tracking, and alerts for missed doses. A camera with a smart video processor can count and identify the pills, ensuring accurate medication. A smart camera outside the dispenser can even identify the person receiving the medicine [a few thousand people die in US alone due to inadvertent delivery of wrong medication!].

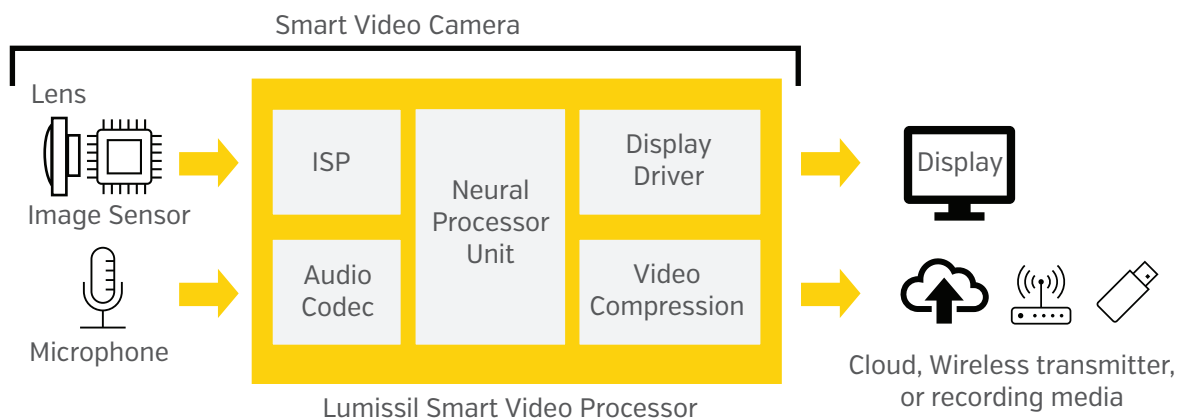
- Cameras with AI at the edge (in camera) can be the first line of diagnosis for many conditions such as skin cancer, rash, wound detection, glaucoma or sleep apnea. Data can automatically be sent for doctor’s analysis before an appointment to help improve treatment plans.
- AI-powered eye diagnosis can help to improve the accuracy and speed of eye disease detection, as well as reducing the workload for healthcare professionals. Some examples of AI in eye diagnosis include the use of algorithms to detect diabetic retinopathy, glaucoma, and age-related macular degeneration (AMD) from retinal images, as well as using AI to analyze optical coherence tomography scans to assess retinal thickness and other features.

Lumissil’s Smart Video processors like the T40, T31 and C100 are a great fit for these types of devices since it’s an all-in-one SoC that can process camera data, audio inputs, perform AI processing and output compressed video. A typical smart video camera system is shown below in Figure 1 and highlights the Lumissil Smart Video processor in blue.

The processors are well known for our Xburst CPU technology, which is low power, high performance and cost effective. They are popular in many mobile and embedded devices that operate on batteries. The processor achieves lowest power operation by using advanced process nodes, dynamic clock management, silicon designed to minimize leakage and 6 different operating states from full power to hibernate mode.

The AI engine is based on SIMD instruction set architecture that is optimized for processing neural networks. With this technology we can boast the lowest cost per operation in this class of edge processors.

Since medical data comes with privacy concerns Lumissil processors are also equipped with high level cybersecurity features such as AES256 and RSA/SHA encryption – just to name a few. We offer you to check Lumissil’s website [www.lumissil.com](http://www.lumissil.com) for further information on the smart video processors or contact Lumissil sales (contact info can be found on the website).



**CONTACT**

For more information, email [marketing@lumissil.com](mailto:marketing@lumissil.com) or Inayat Khajasha at [ikhajasha@lumissil.com](mailto:ikhajasha@lumissil.com)