



AI at the Edge with NVIDIA Jetson

Challenge

- > The variety of vehicle license plate styles makes them difficult to detect
- > Car stickers or advertisements on vehicles lead to false positives
- > Traditional methods are memory-intensive and expensive

NVIDIA Solution

- > Flexible platforms
- > Tremendous computational power at the edge
- > Proven reliability

Results

- > Easy-to-deploy technology
- > High accuracy levels
- > Cost-effective integration and operation

SMARTCOW MAKES AUTOMATIC LICENSE PLATE RECOGNITION MORE EFFECTIVE

“NVIDIA Jetson systems enable us to scale our AI at the edge efforts. Our products can support up to 20 cameras, allowing us to cater for individuals as well as government bodies and large enterprises. The Xavier platform is very fast, easy to deploy, and inexpensive.”

- Ravi Kiran, Co-Founder and CTO of SmartCow.

Automated Solution for License Plate Recognition

License plate detection can help to enhance parking experiences and improve vehicle security on private and public premises. But traditional recognition methods are memory-intensive, expensive, and high-maintenance. The number of different license plate styles, as well as their varying positions on vehicles, make it difficult to recognize number plates automatically. It's also common to find stickers advertising businesses or products on vehicles, which create false positives in traditional automatic license plate recognition systems.

SmartCow addressed these challenges by moving the computation to the edge with the NVIDIA® Jetson™ family of embedded solutions, making the process fast and cost-effective.

NVIDIA Platform

The NVIDIA Jetson TX2 supercomputer on a module provides the compute power for SmartCow's Hawkeye and GateKeeper products and the Jetson Nano™ will power their upcoming Sentinel solution. Each product has a specialized use. Hawkeye will service highways, factories with single access points, and complex environments, while GateKeeper is designed for industrial complexes with multiple entrances and Sentinel for apartments and small businesses.

Products Used

- > Jetson TX2
- > Two DGX-1s™ for training
- > Jetson AGX Xavier™

Processing Engines Used

- > 4K cameras
- > Network video recorders

Software Used

- > Python Flask and C++ for business applications
- > Python Flask, TensorFlow, and NVIDIA TensorRT for the annotation framework
- > DLA
- > NVIDIA CUDA®



Using Jetson platforms with NVIDIA TensorRT™ lets SmartCow develop models that take only milliseconds to detect and decipher number plate images. Deploying their solutions takes less than 30 minutes, making them extremely fast and cost-effective.

SmartCow Results

Currently, there are no automatic license plate recognition products for the consumer market (homes, colleges, shopping malls). The license for an existing solution costs \$1000 and the required hardware would cost the user another \$1000. In addition to the monetary commitments needed, users would also need the expertise to install and configure the system correctly.

SmartCow's edge compute service means that their system is accessible, cost-effective, and provides significant speed-up compared to traditional systems.

By deploying SmartCow systems, users can track license plates for automated access control, secure their property by validating visitors, enhance parking experiences by creating ticketless parking, and more.

About SmartCow

SmartCow is an AI engineering company that specializes in embedded systems and deep learning. They have offices in Malta and India.



[LEARN MORE](#)

Contact us: jetson@nvidia.com

Learn more: www.nvidia.com/robotics

Learn more about SmartCow at: www.smartcow.ai