

# Introduction to **SDC Hardware & Software**



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# Overview

- **Hardware**
  - Hardware parts on an actual SDC
  - Programmable Components
  - Non-Programmable Components
- **Software**
  - Robot Operating System (ROS)
  - NVIDIA Jetpack
  - Arduino IDE
  - OpenCV
  - Tensorflow
  - TensorRT

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- **Hardware**

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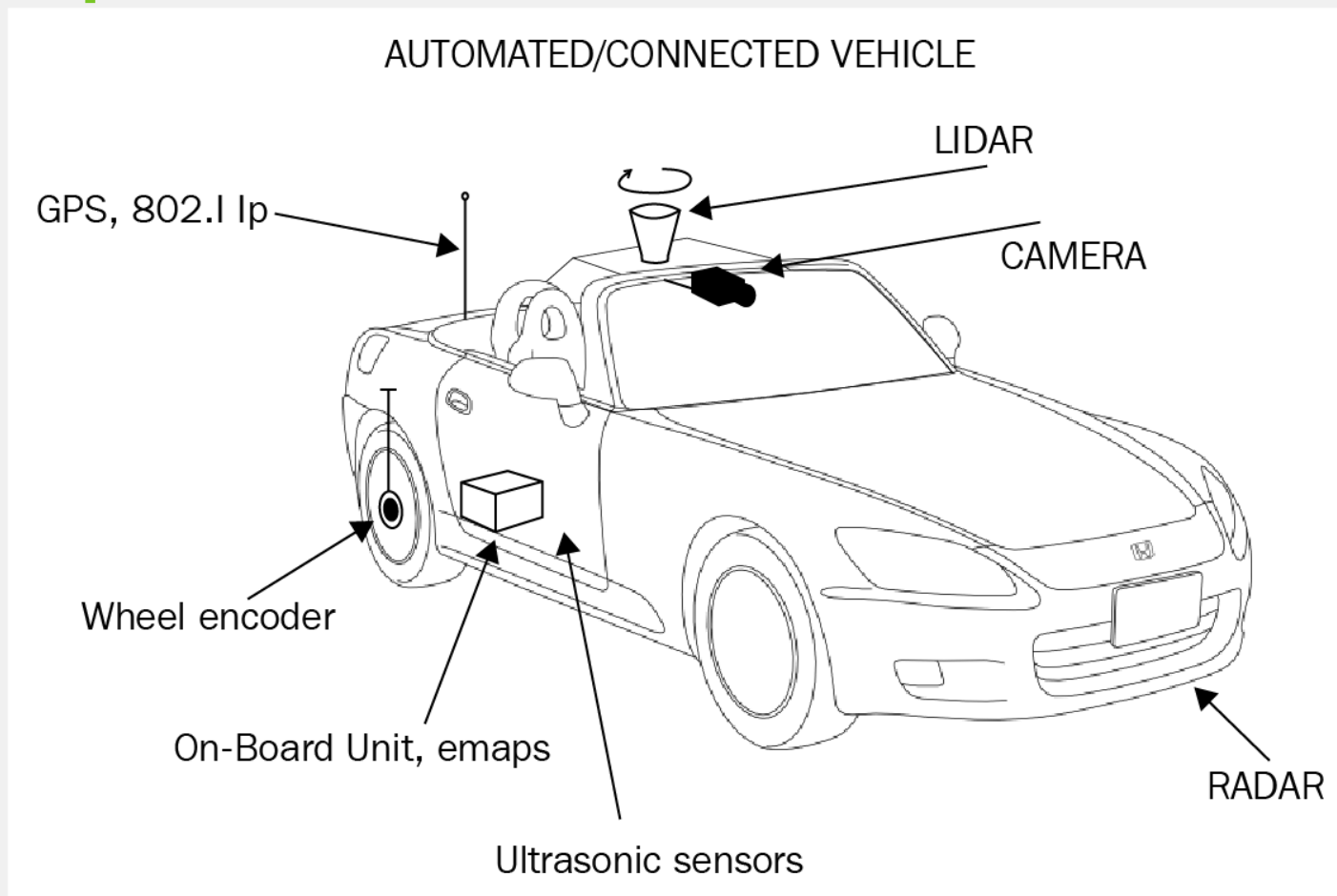
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# Overview

- Hardware parts on an actual SDC



# Overview

Device Name	Description	Market Example
LiDAR	Used to detect surroundings using light imaging	OPAL-P1000
Ultrasonic Sensor	Used on side-ways to detect any objects from both sides	BOSCH Ultrasonic Sensor
Camera	Used for all deep learning-based image processing	BOSCH MPC3
Wheel Encoder	For the distance covered by the wheels	Zltech
On-Board CPU	Processing services for the car	Nvidia Driver AGX Orin
Radar	Use radio waves to detect objects in way.	URAD Automotive FMCW
GPS	Map service and global localization	Clacion Fx450

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- **NVIDIA Jetson Nano**
- **Arduino**

# Overview

- Main Processing Units (Brain of the SDC)

Arduino UNO



Jetson Nano



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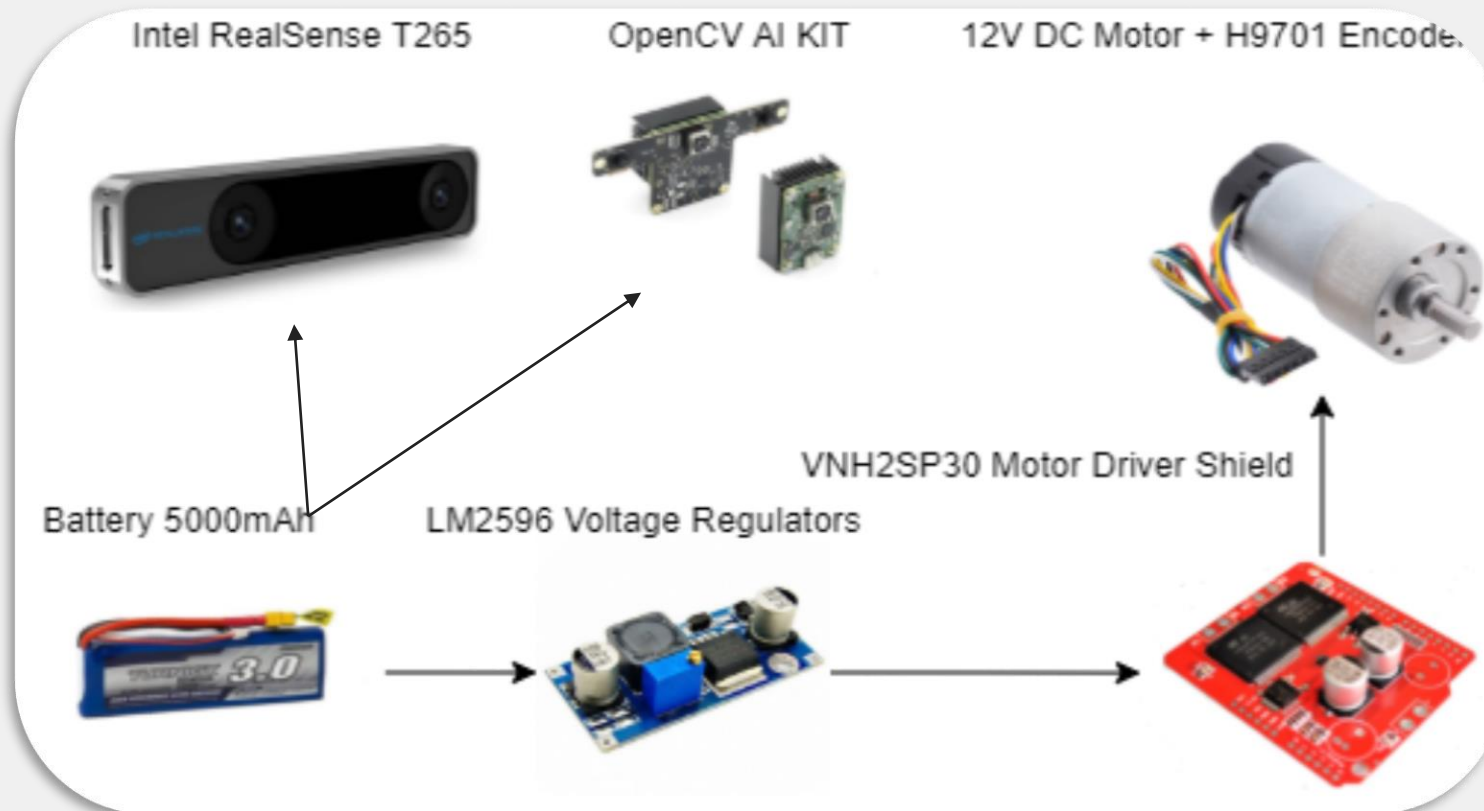
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- **Body Chases + Wheels**
- **Batteries**
- **Motors + Encoders**
- **Monster Motor Driver Shield**
- **Voltage Regulators**
- **Intel RealSense T265**
- **OpenCV AI Kit**



# Overview

- Hardware (Non-Programmable)



**Thank You**