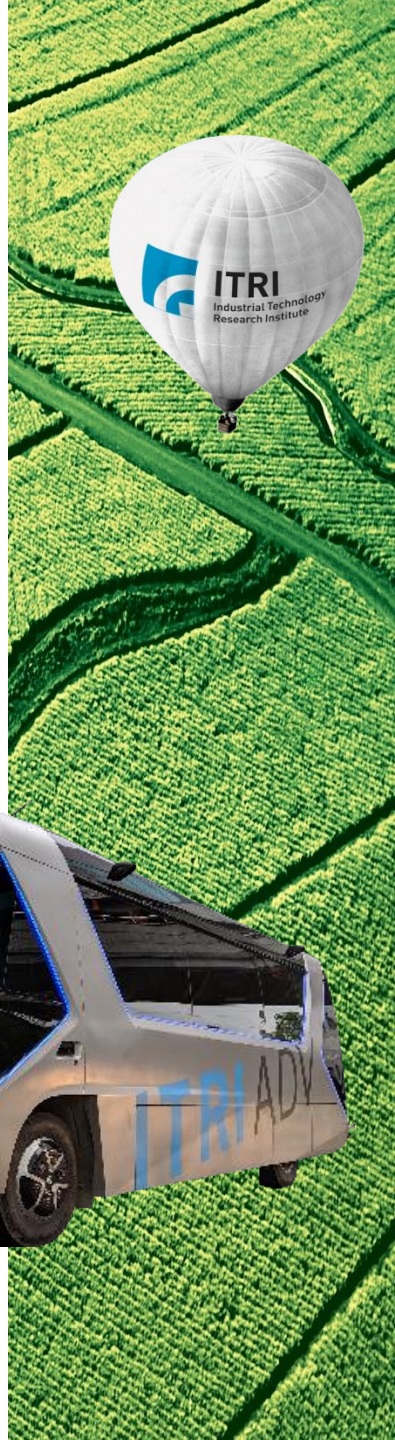


工業技術研究院

Industrial Technology
Research Institute



ITRI ADV Upgrade Status

Michael Li

Division Director

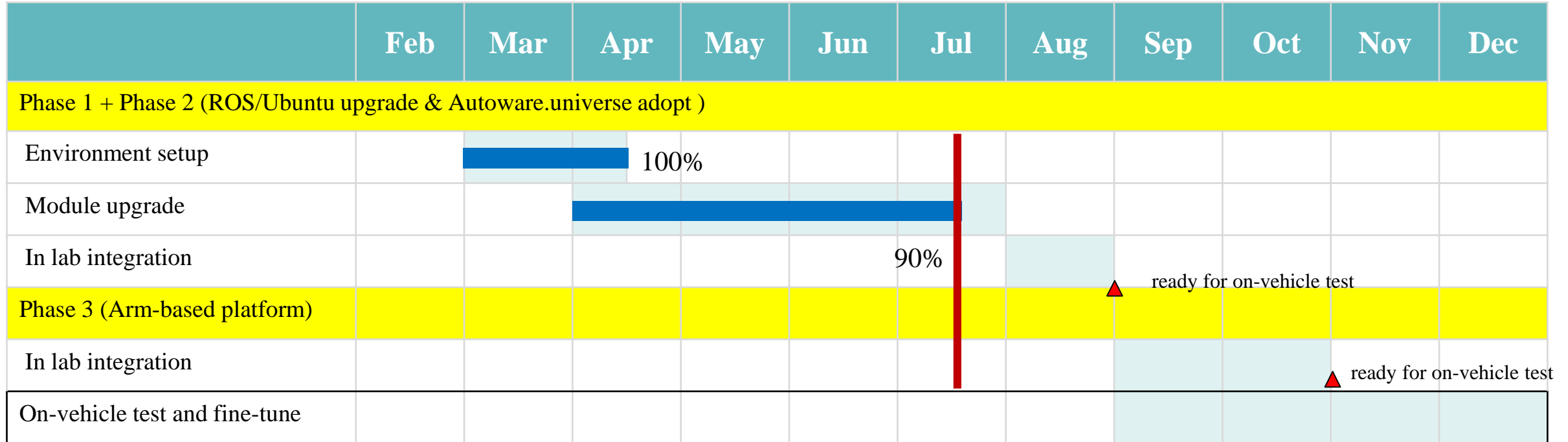
**Division for Connected and Autonomous Vehicle System
Information and Communication Lab.,
Industrial Technology Research Institute**



2022/7/21

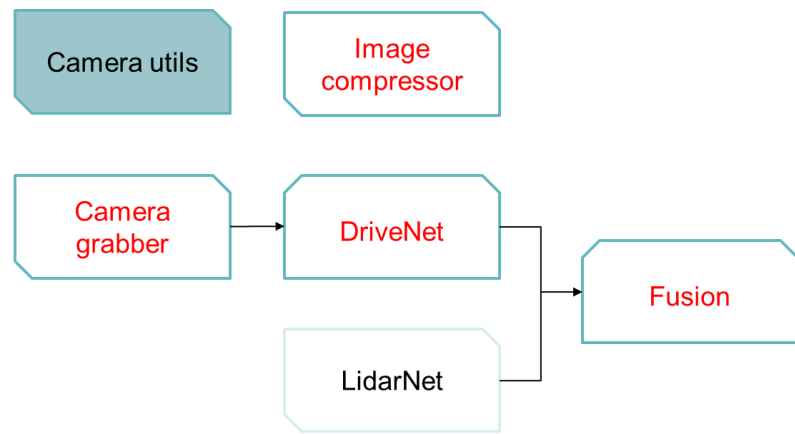
ITRI ADV Upgrade Schedule

Updated Schedule (Merging Phase 1 and Phase 2)

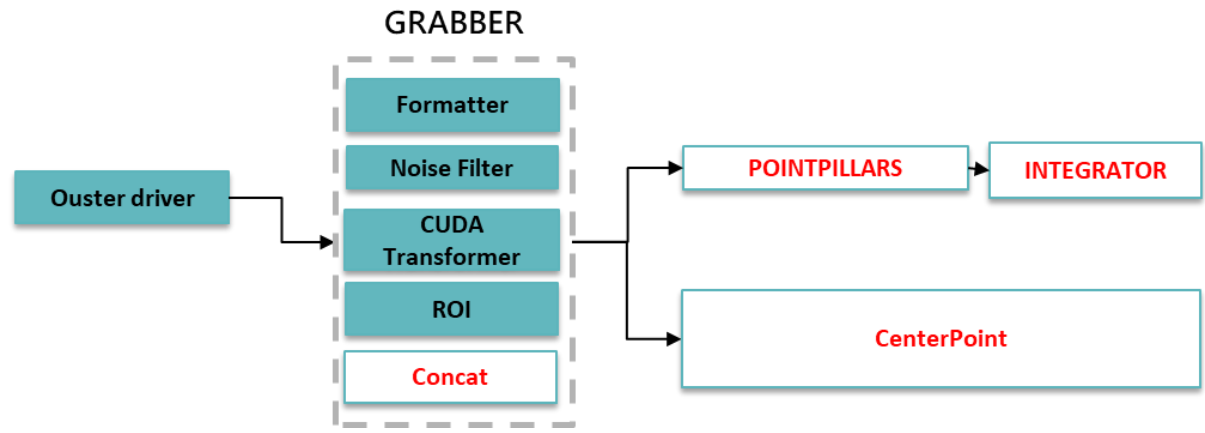


Now

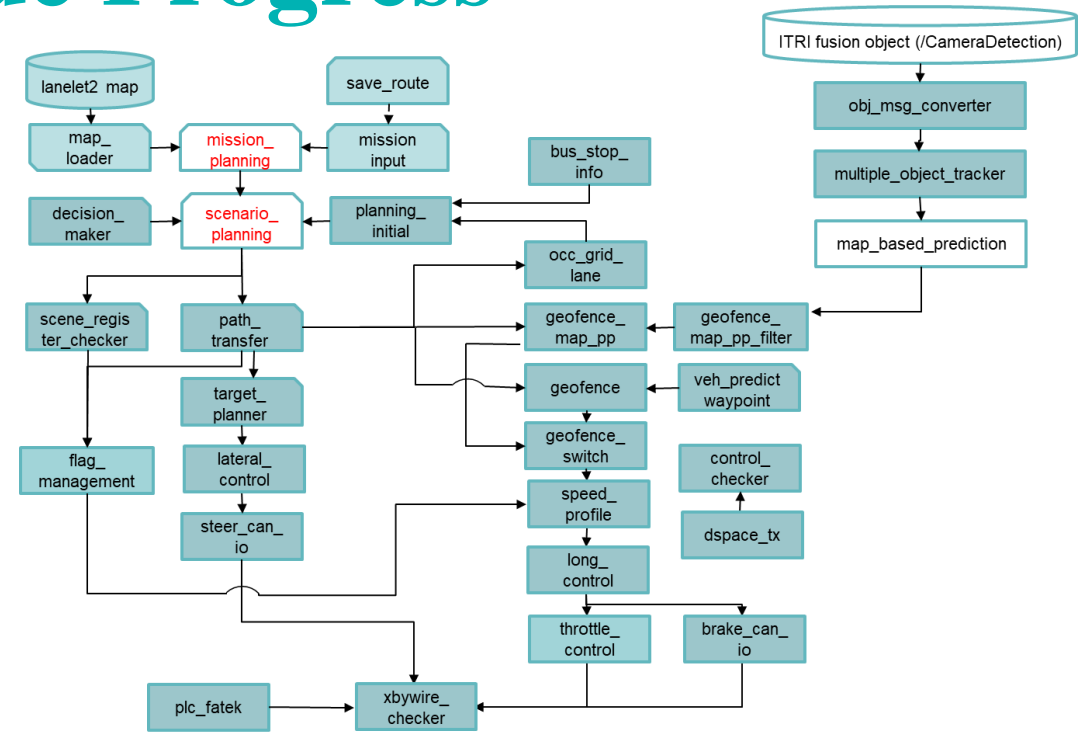
Module Upgrade Progress



Camera Perception & Fusion Modules

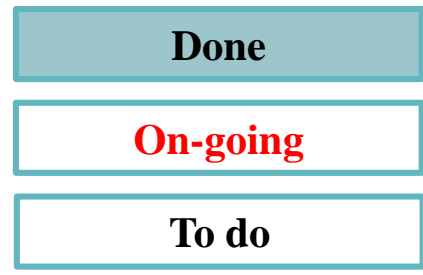


LiDAR Perception & Positioning Modules



Planning & Tracking Modules

Phase 1 + Phase 2
Module Upgrade Progress: 90%



Camera Perception & Fusion Modules

- **Camera grabber**

- On-vehicle camera grabber testing for 8 cameras
- We use rviz 2 in Camera IPC to monitor 8 cameras and set up the QoS value of ROS 2. It turns out the FPS is around 22.

- **DriveNet**

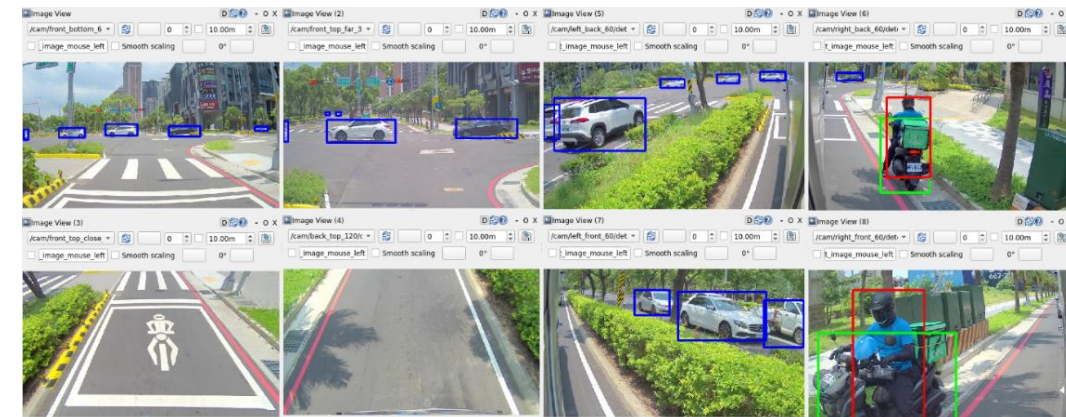
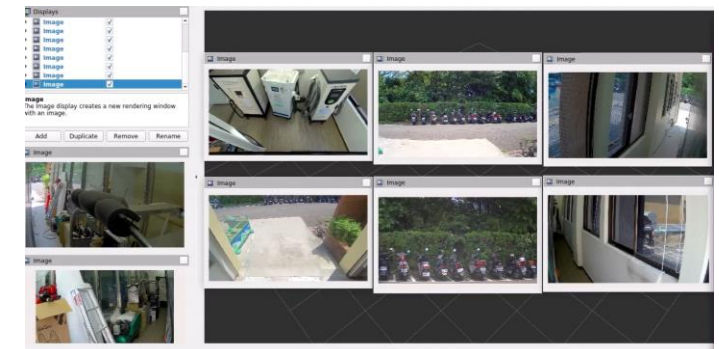
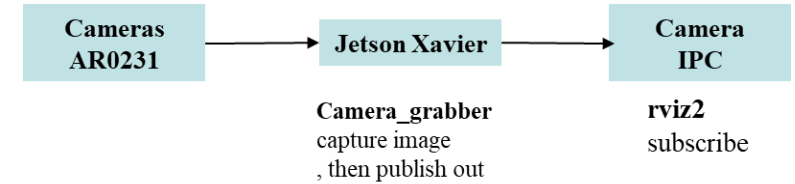
- Extension for 8 cameras is ongoing and will contribute to Software WG soon
 - Generate onnx model supporting 2~4 batch size (done)
 - Pre-processing/inference/post-processing (done)
 - DriveNet module for 8 cameras (done)
 - Int8 calibration
 - Generate engine by Yolov3 weight (done)
 - Generate engine by ITRI weight (on-going)

- **Fusion**

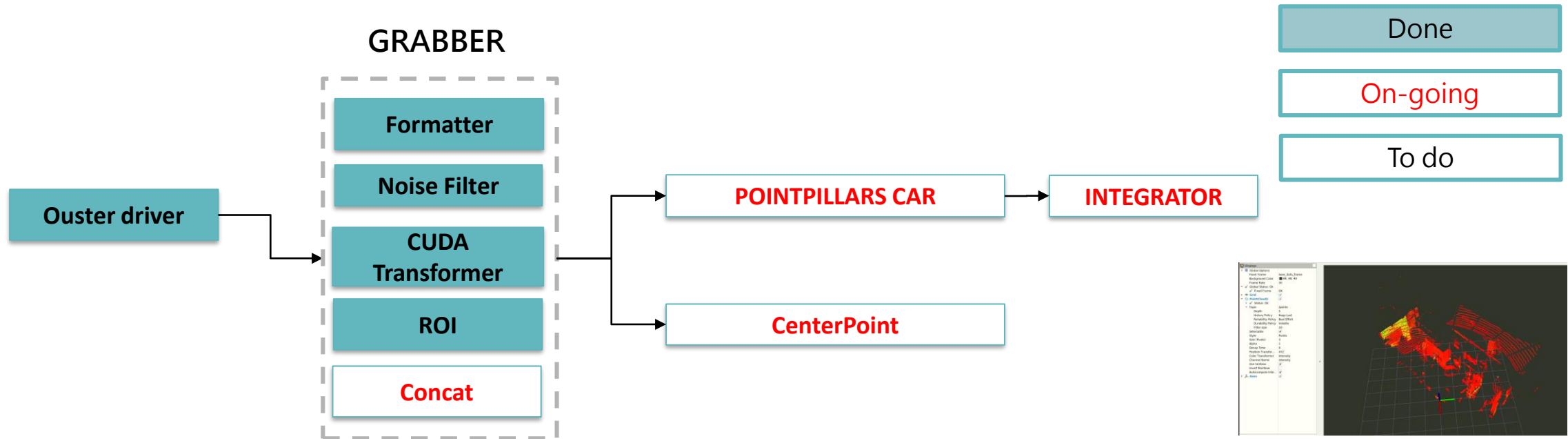
- Building visualization assisting tool
 - Image viewer (done)
 - Point cloud viewer (ongoing)



ROS1; no use Docker	ROS2 ; use Docker (Camera IPC)
FPS 22	FPS 22



LiDAR Perception & Positioning Modules



ROS2 Driver testing (done)

- **Pointpillars** was used in ROS 1.0 in ITRI bus, and the upgrade to ROS 2.0 is still ongoing
 - Error: Last incompatible policy: RELIABILITY_QOS_POLICY (ongoing)
- **CenterPoint** from Autoware.universe will also be adopted
 - open error: libcenterpoint_cuda_libraries.so (ongoing)
- Both **Pointpillars** and **CenterPoint** will be evaluated based on the performance

Planning Modules

Integrated List	Folder	Package Need Integrate	Complete Status
autoware.universe	common	global_parameter_loader	V
autoware.universe	vehicle	vehicle_info_util	V
autoware	src/vehicle/	sample_vehicle_description	V
autoware.universe	map	map_loader	V
		map_tf_generator	V
autoware	sensor_kit		
autoware.universe	system		
autoware.universe	simulator		
autoware.universe	launch	tier4_vehicle_launch	V
		tier4_map_launch	V
		tier4_planning_launch	
autoware.universe	planning	mission_planner	
		behavior_velocity_planner	
		lane_change_planner	
		obstacle_avoidance_planner	

- Thanks for Autoware's help on the planning upgrade. Above folders have been integrated in ITRI bus, and some packages have been built successfully.
- After completing integration of above packages, the testing result will be contributed to software WG directly.