The state of autonomous vehicles in Alberta

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While autonomous vehicle development and deployment is at its infancy in the provincial stage, there is some noted testing activity at a municipal level. The municipalities of Edmonton, Calgary, Wetaskiwin and Beaumont have commenced autonomous vehicles testing pilot programs. These activities appear to be supported by the Alberta government with some level of funding and awareness campaigns. We describe below the recent AV momentum in Alberta:

Regulatory and Government Support for Autonomous Vehicles

The Alberta government has shown its interest and support for the growing autonomous vehicle industry by launching several new initiatives during the first quarter of 2019.

The first of these was Alberta's participation in the creation of the Automated and Connected Vehicles Policy Framework for Canada, which was released on January 21, 2019. The policy framework was created to define a set of policy principles for all jurisdictions in Canada to follow as autonomous vehicles are tested and deployed in the future. The framework also addresses policy and regulatory issues that need to be addressed before autonomous vehicles can become widespread on Canadian roads.

While the policy framework is in place, as of June 2019 there have been no provincial regulation changes related specifically to autonomous vehicles in Alberta. In fact, autonomous vehicles at levels three, four or five, as defined by the Society of Automotive Engineers, require an exemption issued by the Registrar from applicable regulations to operate on public roads or highways defined by the Traffic Safety Act. These exemptions are evaluated on a case-by-case basis and approval of an application is at the sole discretion of the Registrar.

An example of a highly autonomous vehicle that has received an exemption from the Registrar is a pilot project called ELA or Electric Autonomous - an electric, low-speed, autonomous shuttle. Members of the public were able to ride in the shuttle on short, controlled routes separate from public roads in the municipalities of Calgary, Edmonton and Wetaskiwin. The demonstrations were intended to build public awareness of and familiarity with autonomous vehicle technology.

The City of Beaumont is currently hosting Pacific Western Transportation's ELA in the first pilot of an autonomous electric shuttle in mixed traffic use. In this pilot, the ELA is fully integrated with traffic, traffic technology and pedestrians, where it will read and interpret a regular traffic signal.

Along with regulatory reviews, the Alberta government has started to support the autonomous vehicle industry financially. On February 13, 2019, the Alberta Government announced that it was investing $100 million over five years to attract more artificial intelligence-based high-tech companies to the province. This investment is being made through two existing government entities, Alberta Innovates and the Alberta Machine Intelligence Institute (Amii).

At a municipal level, some noted developments include the City of Edmonton's release of the Smart Transportation Action Plan in September of 2018 which provided steps addressing how to progress the autonomous vehicle industry Alberta. These steps included development of city regulations and permits to handle autonomous vehicle testing, as well as discussion on how to align these regulations with those at the provincial and federal level. Edmonton is currently working on establishing these regulations. This followed a commissioned report on the future of the autonomous vehicle industry and its impact on the city. The report estimated that autonomous vehicles will account for up to 75 per cent of the cars on Edmonton roads by the year 2040. It also forecasted that level three autonomous vehicles will be available to the public markets between 2020-2025.

The Edmonton International Airport (EIA) has also been transformed as a testing facility for different autonomous vehicle projects. The first of these was a partnership with Clear Flight Solutions to test the "Robird" bird control system in the summer of 2017. This partnership was focused on the pilot-controlled Robird, but has led to other drone flights in the area allowing for data collection and mapping of the EIA's "Aerotropolis". The data that was gathered from the other drone flights will help progress deployment of more highly autonomous vehicles in the future. More recently, in July 2018 the EIA partnered with the Alberta Centre for Advanced Microprocessor and Nanotechnology Products (ACAMP) to launch an autonomous ATV that can be used for security patrolling purposes. The vehicle is remotely controlled by humans, but also collects data and incorporates machine learning to perform its tasks autonomously.

Outside of the provincial and municipal governments, other players are working to build the autonomous vehicle industry in Alberta. The largest of these are the post-secondary institutions across Alberta such as the University of Alberta and University of Calgary. At these institutions, researchers are working on projects like ACTIVE-AURORA to develop Canada's first connected vehicle test bed network. Another focus of Alberta's academic institutions is testing autonomous vehicles to operate in winter conditions that are unique to Alberta.

In conclusion, Alberta understands the drastic impact that autonomous vehicles are going to have on how Albertans work and live. The provincial government has made significant financial commitments to building the autonomous vehicle industry in the province, and is also in the process of laying the regulatory groundwork to ensure autonomous vehicles are implemented safely onto Alberta's roads. This support has ignited an ecosystem of players, including municipalities and academic institutions, who assist the development of autonomous vehicle technology in Alberta.

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