What is claimed is:

1. A planar-beam, light detection and ranging (PLADAR) system, the PLADAR system comprising:

a laser scanner emitting a planar beam;

a detector array to detect reflected light based on the planar beam being reflected from external surfaces of target objects; and

an adjustment controller;

wherein the detector array comprises at least one row of photodetectors included on a circuit board of the PLADAR system, the circuit board comprising a number of adjustment components to calibrate each of the at least one row of photodetectors; and

wherein the adjustment controller dynamically adjusts the adjustment components to configure the at least one row of photodetectors in response to a command signal from a data processing system.

2. The PLADAR system of claim 1, wherein the laser scanner comprises a collimation component that collimates a laser beam generated by the laser scanner into the planar beam.

3. The PLADAR system of claim 2, wherein the laser scanner comprises a fiber laser that outputs the laser beam.

4. The PLADAR system of claim 1, wherein the PLADAR system is included on an autonomous vehicle (AV), and wherein the data processing system processes sensor data from the PLADAR system to dynamically identify features as the AV accelerates and maneuvers.

5. The PLADAR system of claim 1, further comprising:

an analog to digital converter (ADC) chain coupled to the at least one row of photodetectors;

wherein the data processing system samples data from each ADC of the ADC chain simultaneously.

6. An autonomous vehicle (AV) comprising:

at least one planar-beam, light detection and ranging (PLADAR) system to generate sensor data indicating a situational environment of the AV, each of the at least one PLADAR system comprising (i) a laser scanner emitting a planar beam, and (ii) a detector array to detect reflected light based on the planar beam being reflected from external surfaces;

an on-board data processing system to process the sensor data from the PLADAR system to identify features along a current route traveled by the AV;

an acceleration, braking, and steering system; and

an AV control system to utilize the processed sensor data to operate the acceleration, braking, and steering system along the current route.

7. The AV of claim 6, wherein the laser scanner comprises a collimation component that collimates a laser beam generated by the laser scanner into the planar beam.

8. The AV of claim 7, wherein the laser scanner comprises a fiber laser that outputs the laser beam.

9. The AV of claim 6, wherein the detector array comprises at least one row of photodetectors.

10. The AV of claim 9, wherein the at least one row of photodetectors are included on a circuit board of the PLADAR system, the circuit board comprising a number of adjustment components to calibrate each of the at least one row of photodetectors in concert.

11. The AV of claim 10, wherein the PLADAR system further includes an adjustment controller to dynamically adjust the adjustment components to configure the at least one row of photodetectors in response to a command signal from the on-board data processing system.

12. The AV of claim 9, wherein the PLADAR system further include an analog to digital converter (ADC) chain coupled to the at least one row of photodetectors, and wherein the on-board data processing system processes data from each ADC of the ADC chain simultaneously.

13. The AV of claim 9, further comprising:

a stereo camera system to generate dynamic image data further indicating the situational environment of the AV;

wherein the on-board data processing system further processes the dynamic image data to further identify features along the current route traveled by the AV.

14. The AV of claim 13, wherein the AV control system further utilizes the processed dynamic image data to operate the acceleration, braking, and steering system along the current route.

15. The AV of claim 14, further comprising:

a communication interface to receive commands from a backend transport system that facilitates transportation for a number of users throughout a given region, each respective one of the commands including a destination;

wherein the AV control system processes the respective command to operate the acceleration, braking, and steering system to drive the AV to the destination.

16. The AV of claim 15, wherein the AV control system utilizes an on-board mapping resource to determine an optimal route to the destination.

17. The AV of claim 16, wherein the AV control system simultaneously operates the acceleration, braking, and steering system by (i) utilizing route data, corresponding to the optimal route to the destination, to drive the AV to the destination, and (ii) utilizing the processed sensor data and the processed dynamic image data to make decisions and react to the situational environment of the AV.

18. A planar-beam, light detection and ranging (PLADAR) system, the PLADAR system comprising:

a laser scanner emitting a planar beam; and

a detector array to detect reflected light based on the planar beam being reflected from external surfaces;

wherein the PLADAR system is included on an autonomous vehicle (AV) and enables a data processing system of the AV to processes sensor data from the PLADAR system to dynamically identify features as the AV operates along a route.