

Eindhoven University of Technology  
Department of Mathematics and Computer Science  
Automotive/Mechatronics Systems Design

# Project ImRad

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*Automotive Systems Design In-house Project*

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## Team ASD



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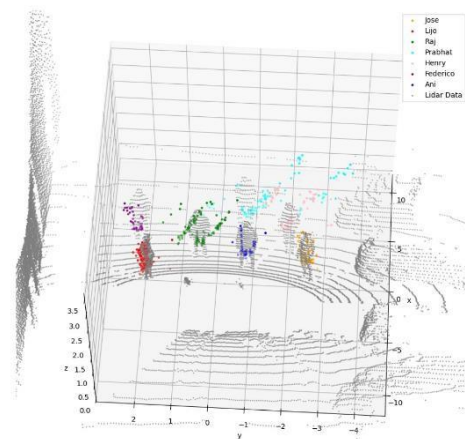
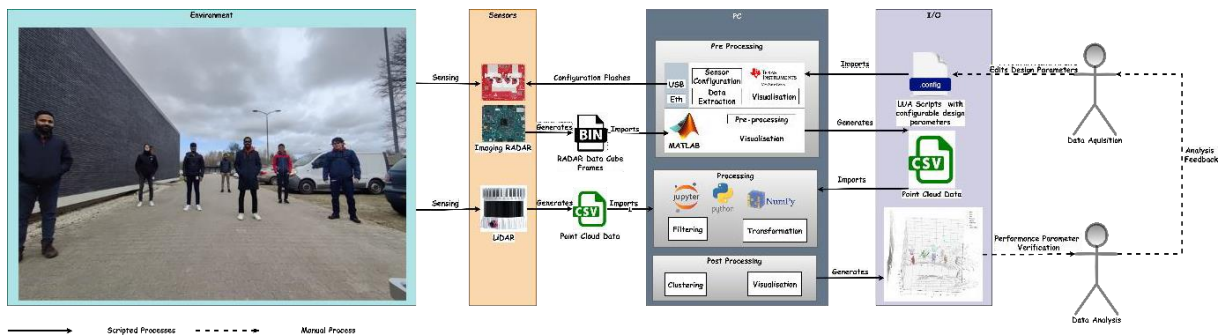


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The Mobile Perception Systems (MPS) lab at TU/e explores methods that allow autonomous systems to perceive their environment. The MPS lab has recently acquired a prototype radar sensor, a Cascaded Imaging Radar RF system (TIDP01012) from Texas Instruments. The goal of this project was to perform a capability study on the new Imaging Radar Sensor and to propose a solution for its integration with the current autonomous vehicle in the MPS lab.

Project ImRad started with understanding the configuration parameters along with configuring the sensor according to different applications. As the next step, the technical specifications of the prototype were verified. Based on these findings, it was proposed that the imaging radar sensor could be used for medium range object detection. After having acquired measurements in different scenarios, clustering algorithms were applied to compare and validate the data from the imaging radar against data from a LiDAR sensor. Finally, the project was concluded by physically integrating the sensor onto the existing autonomous vehicle of the MPS lab.

At the end of the project, it is concluded that the sensor could be very promising for dynamic measurements and would be a viable solution for accurate object perception when jointly used along with the LiDAR sensor. The images below show the software architecture of the project and the experiment result of benchmarking the imaging radar with LiDAR.



### Contributors:

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Feel free to contact us if you want to know more.