

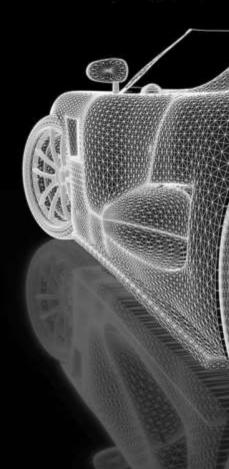
Introduction
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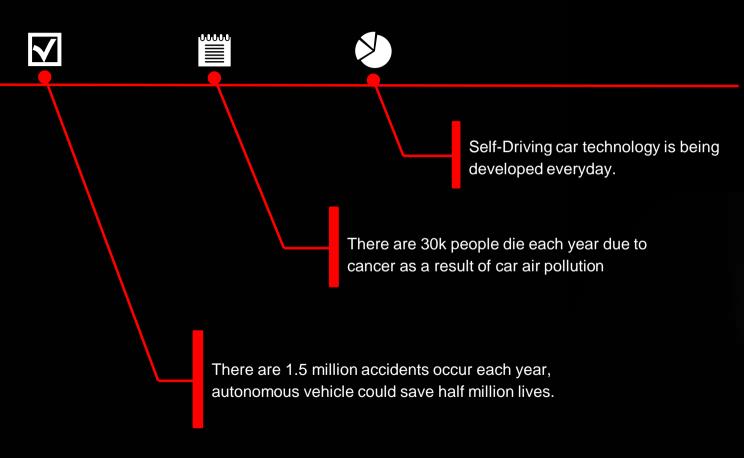
Car Enviroment
Demo

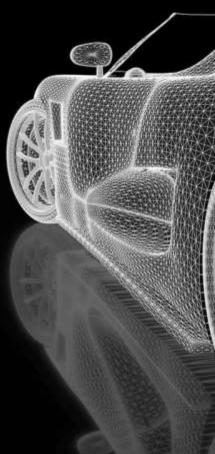




Introduction



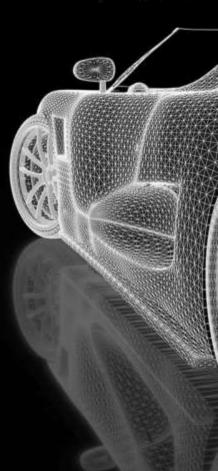




Problem Statement

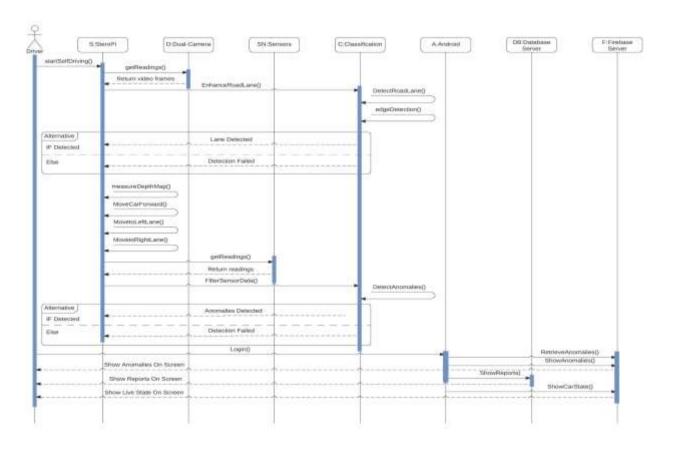


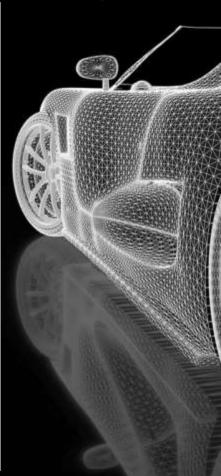
Self Driving cars are still not totally legal in lots of countries as they are still not safe enough to be relied on in public.



Main Sequence Diagram

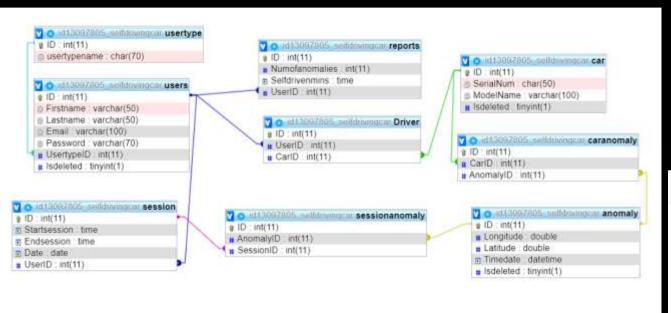






Database and Firebase Schema

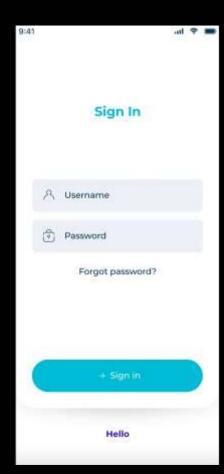


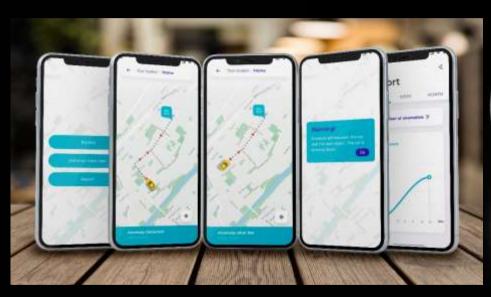


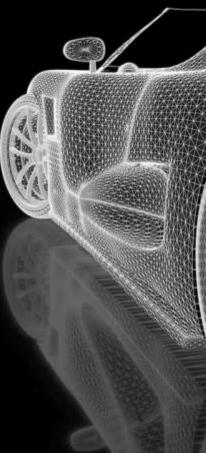


GUI Samples









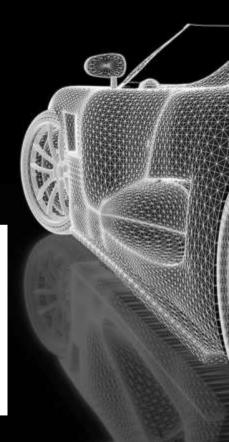
Class Diagram Polle DED Departs Observator + pregnetarily statel settoriowinione Time IC: Integer about order Americansis + reactionary con, error digitirumetoassetsspraides or Socialment Lorus wes/Profried add/volled; updatelania con, enevidatal anagenty, Angenety wettone litring CRUD teachers · UsdateDroved deletelativy datal - lagrati Assoc String · SitonerecorteDriver all + CRUD Interfere - West Drawell + assection in their distribution. BenoveDriver) view(holitel) do colvection Likes Ukertune - estilization estance Session loon) ID: treeps -CE+ startSeason, Time and tribunianily FirstName: String Drawing: endiesson Time Lachure String Deservation Delver Story viernichments , these floor. CRUD Insurface Friedmini Sapleton Email: String r user: Unio pelect/Sixing th, analy york ID Mapic executate Diversation Password Street insettitring to Instance Southton anomaly Assembly cos Car some Own in Passort Passort III. avoided String to, array cont. Distribution Geblotaton driverflats: Double pethylacosti. isettyje Uwrtipe CRUD Interface Stackhood padateStringth; array data, area conminch? ID: Vrteger несовібеть динуї - CROD Intertain sieuProhisti + CRID interface intert? -Lat Double Websitellegist estributed: deleted -Ing : Double Regire() codition. - ORDO Interfere Anemaky VolVSingleton D. Hessia mant/Dissist Report/Dates Monthly Report esotor: Geotocation Tour informati getRequeseQuesed: RequestQuese patrice Dayler authorance): VolkerSinglation CRUID Interface actdFaculantOtFaculant rect worth createReportReport ri constail Report Report (Peur **Directorios** AdmiraController Request/(ci epe: OPS -perferanced sides/Southern Wides/Southern Continues - GetCurrentLocGeoLocation vi driver Driver StartModelper st/Verill -geffloxfrg) Structure or revent acidDriver). HosertApi0 void workereDriver() montateProfite) Delota Apill wood steleteDrewell Gyericope Accelormentes **BRIPHRISHME** tion (StateSpine) CarCoresider w(hiven) #+identaler= Get Final Are Floor date/horked read Read Barre Go Ficat the Float Strategy RightLane -FitherReadingsGeneorsReadingsI Carry Stemphinger Carteries Gr. Boni Art Floor Enhancelmage/VideoFranci pert postProcessor Dit Duteline OT Dytelline VobryCaliflank Messavi Depth Nach per pre-Processor ChirgeLides). geoloc-Orek mation gester: Declaration Change for Right Law (Motor MotorsProcessor - ordanisticing wit getReading() -prifered/ed outDestination) (Aich instit Motors Proposition Antomiay Classifier Strategy left law 11/4 Settings Hotom Witness Printers in Mirdovet Double MoveToLeft/RoadLaneCaseNer/ Minäpend Dauble: Detect/enmay/hehrocores HoveToRightSload,aneClassRet Airy Deuble Charge blaffi.awi MoveForwardinestors is RouteLaneCountries DeAcc Dealer addisphaloseistoraly () Portugios de la company de la SeviDovetInoten v. AnewalyCussifier Cleanly PrePracessar st. - shapCarbooture at Roadcare/Datable MenindrisionCarrence: Apprehentmentsort Strangy SVM Strategy CNN Video Comers/Contine LaveDetector: RoadLaveClareRe-DetectRoad and ProProcessor of Algorithministració Agosteronstebool getFrane(): Image

Algorithm Choice (1/2)



According to this paper KNN results in driving a motorbike had 80% accuracy and 20% false detection is due to the confusion of driving with the resting and sitting action.

110	Downstairs	Driving	Sitting	On-table	Upstairs
Down-stairs	30	30	0	0	40
Driving	0	80	20	0	0
Sitting	0	0	100	0	0
On-table	0	0	0	100	0
Upstairs	40	0	0	0	60



Algorithm Choice (2/2)



Sensors used (gyroscope and accelerometer)

Machine learning method (SVM)

Accuracy 95.36%

According to this paper SVM is shown to be useful with motion

TABLE III: Accuracy evaluation		TABLE	HI:	Accuracy	evaluation
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Behavior	Accuracy(%)	Precision(%)	Recall(%)	FPR(%)
Normal	99.84	98.80	100.00	0.19
Abnormal	94.81	100.00	99.80	0.00
Weaving	98.43	92.55	87.87	0.63
Swerving	97.94	92.29	94.15	1.39
Sideslipping	98.60	87.96	71.43 76.00 92.72	0.37 0.54 0.86
Fast U-turn	98.49	85.71		
Turning with a wide radius	98.68	89.30		
Sudden braking	95.74	97.88	99.04	1.93
	PARTITION 19	2020121222	4.75	1.7

Chen, Zhongyang & Yu, Jiadi & Zhu, Yanmin & Chen, Yingying & Li, Minglu. (2015). D3: Abnormal driving behaviors detection and identification using smartphone sensors. 524-532. 10.1109/SAHCN.2015.7338354.

D¢LLTechnologies



From: EnvisiontheFuture

Date: Fri, Jan 31, 2020 at 4:01 PM Subject: Result of Dell Technologies Envision

<EnvisiontheFuture@emc.com>

the Future – Graduation Project Competition

To

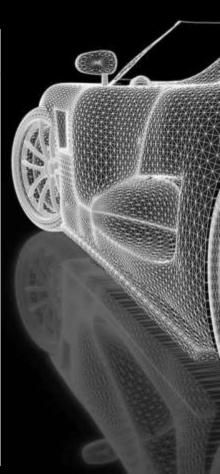
Dell Customer Communication - Confidential

Dear Professor and Team Leader,

Congratulations! Your team's Graduation Project Abstract has been shortlisted for moving to the next phase of the Dell Technologies Envision the Future Competition. This decision is based on the blind evaluation of a panel of distinguished experts who have reviewed the 227 project abstracts that we have received from more than 100 universities, representing 14 countries among the region with total participation number of 1,019 students.

Your team is expected to develop and <u>submit</u> a Design report and a video by Thursday.

Sunday 1st of March.



Car Enviroment







