Collaborative Technology in East Africa for an Efficient Supply Chain

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AFRITRACK, Internet of Things - Track Everything

www.afritrack.com

Internet of Things

Track Everything

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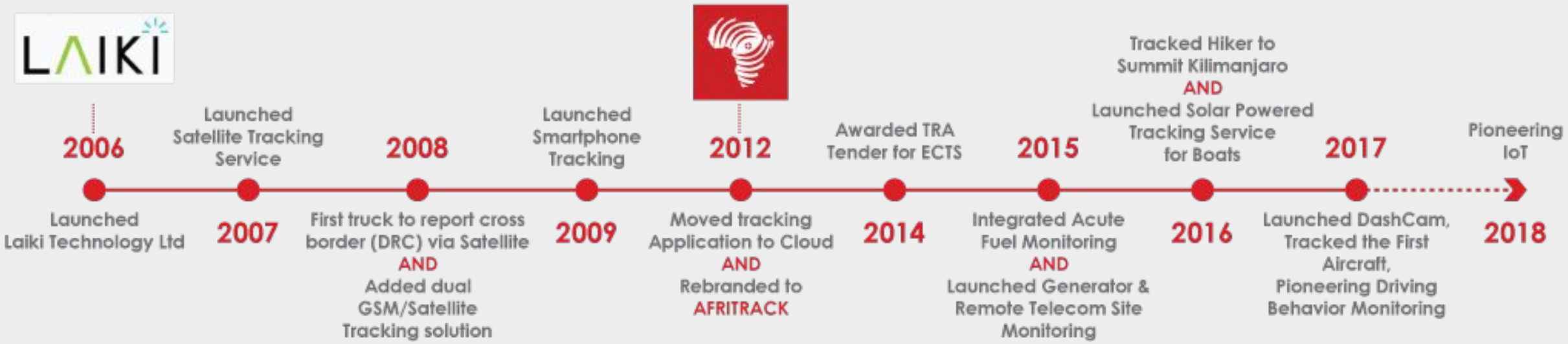
ABOUT US

Incorporated in 2006, one of the firsts to bring vehicle tracking services to Tanzania.

Over the years, we have evolved to become an Internet of Things (IoT) provider.

With years of experience and dedicated focus on customer needs, we have built a reputation for being a reliable and dependable partner to our customers.

Afritrack is now a regional brand that continues to expand in Eastern and Southern Africa.



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Internet of Things – Track Everything

Over the years **Afritrack** has evolved in research and development to provide more power to the user by facilitating **tracking solutions** for all various equipment, herewith to name a few:

Aircraft

Generator

Marine

Mining

BTS

Fleet

Farming

Construction

Machinery

Motorbikes

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AFRICA WIDE COVERAGE

- Local Coverage
- Africa Wide Roaming
- Global Satellite Coverage

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OUR VALUE PROPOSITION:

Actionable Intelligence

Internet of Things

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Internet of Things (IoT)

Is the ability to add trackers and sensors to your assets or environments so that you can get actionable intelligence in order to improve your operations.

Internet of Things

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Collaborative Technologies

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Collaborative Technologies

Across the supply chain conventionally stakeholders operate in digital silos, information is relayed manually through email, group chats and other mediums. Equally information is received and entered manually into back office systems and updates are sent to customers again manually through emails, messages and other mediums.

Possible challenges

1.Too much manual = high error rates, information gaps, misaligned operations, unhappy customers

2.Rigid information systems = longer processing time, duplicate outdated data between multiple systems

3.Digital silos = lowered efficiencies, limited value chain optimizations

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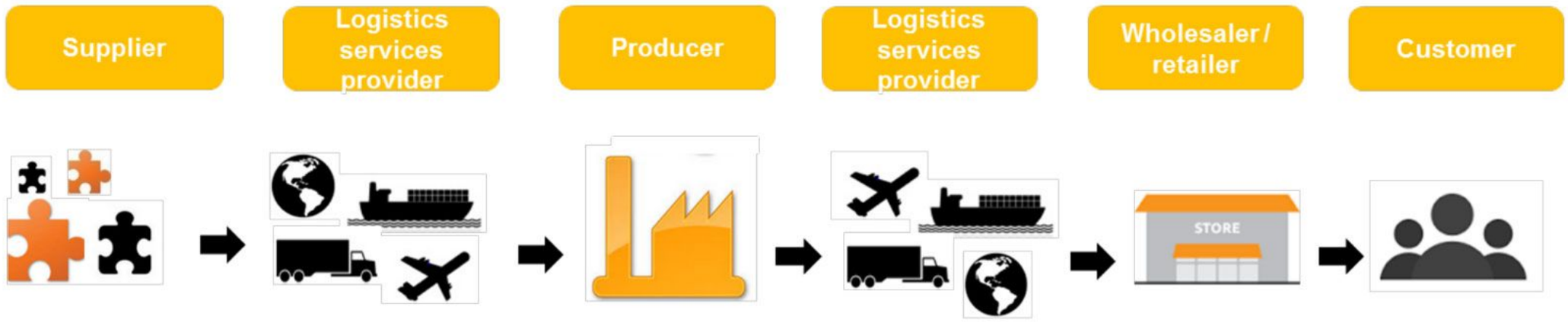


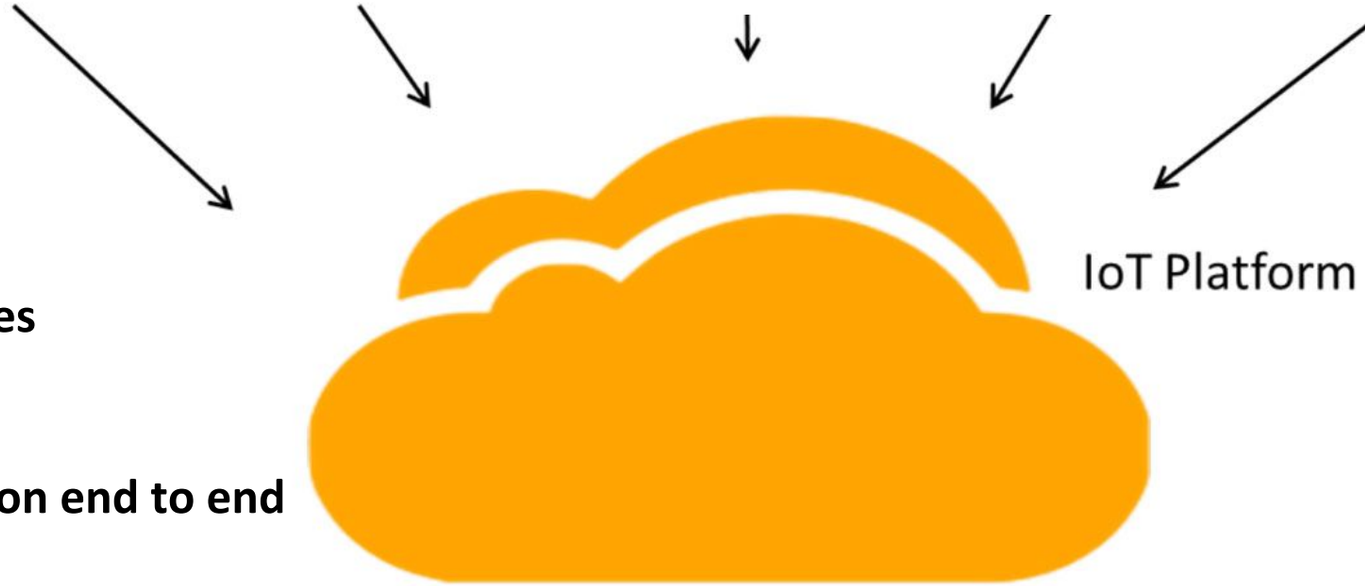
Connected inventory send information on quality, quantity, shelf location

Connected transportation assets send information on e.g location, estimated time of arrival, available capacity

Connected production assets send information on e.g machinery performance, early repair alerts

Connected products send information on e.g expiration date, temperature, humidity, replenishment

Connected products and devices send information on e.g expiration date, traceability, quality



The effect

1.Faster turnaround times

2.Lowered costs

3.Value chain optimization end to end

4. Better compliance and improved safety

4.More work more money for all

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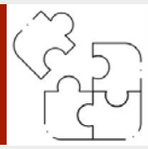
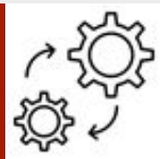
Integrated ecosystems

Conventional Systems		Collaborative Systems
Manual Data gathering across Systems		Real-time Connections
Manual Collaboration		Digitize Collaboration & Scenarios
Manual “What-If” Scenario Creation		Automatic Simulation
Cadence-based Planning and Decision-making		Continuous Event-driven Planning & Decision-making

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Afritrack's IoT Cloud Platform

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Access from anywhere, anytime.

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Meaningful dashboards

Fleet

Total Fleet	63
On the Move	60
In Maintenance	3

Delivery Status

Within time limit	549
Out of time limit	73

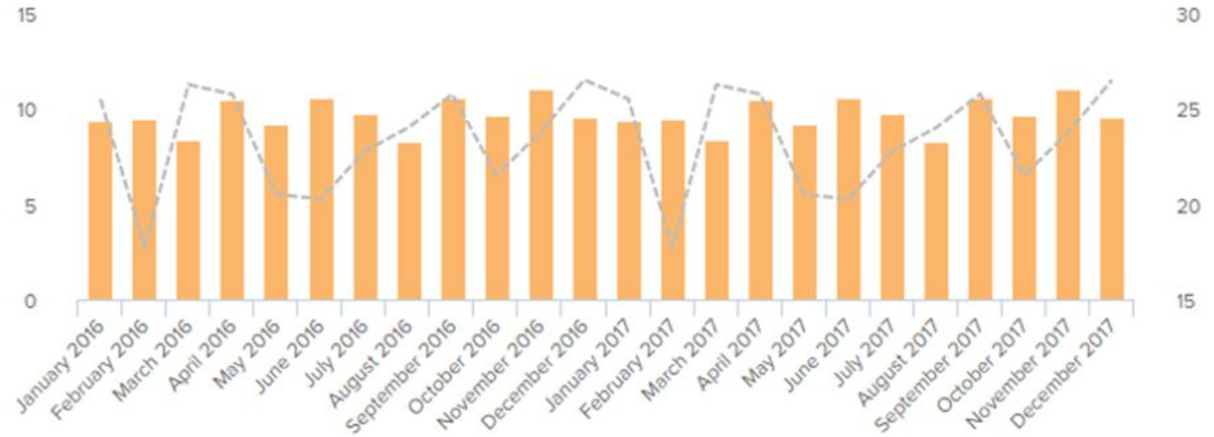
Deliveries by Destination

Germany	35%
France	25%
Switzerland	21%
Austria	19%

23 min
Avg Loading Time

10 tons
Avg Loading Weight

Loading Time & Weight



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In Depth Data Analysis

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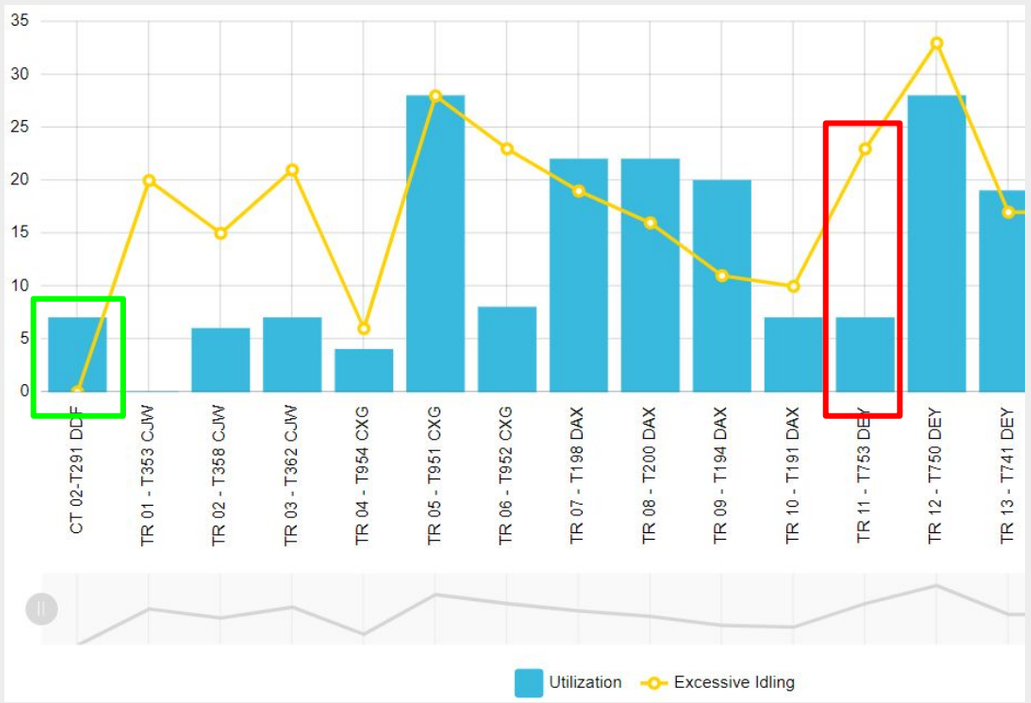
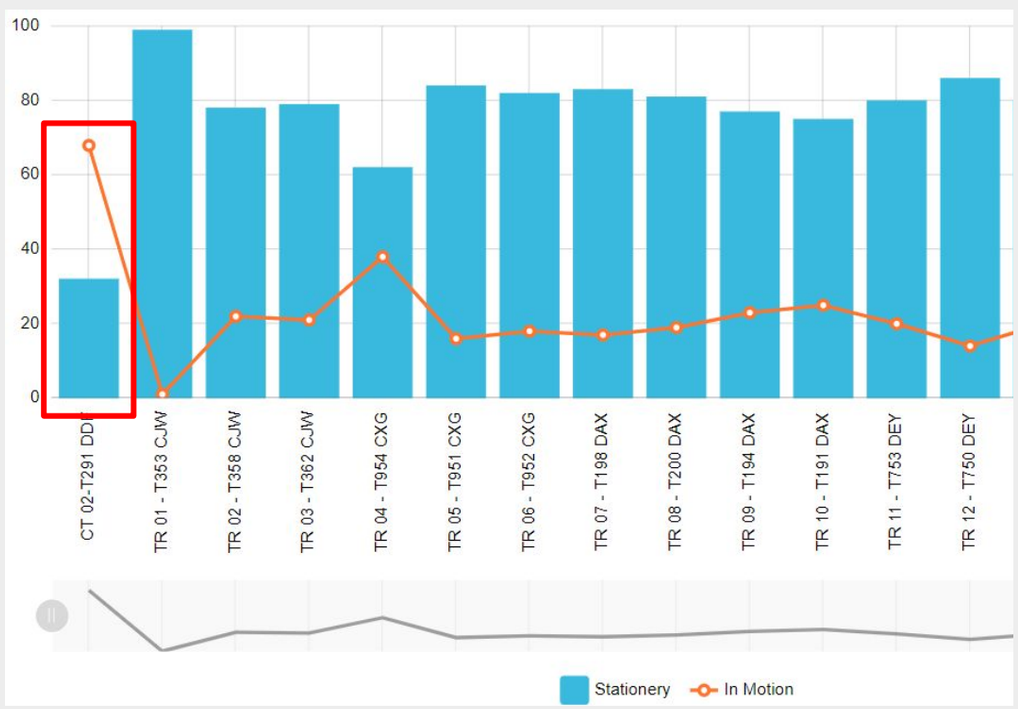
Print

No	Registration	General Alerts						Speeding (Km/h)				Avg Speed (Km/h)	Stop Time (min)						Total Trips	Penalties	Rank	Ranking	Engine Hours	Mileage	Total Duration
		After Hour Trips	Harsh Braking	Harsh Acceleration	Harsh Cornering	Excess Idling	Idle Time	> 80	> 100	> 120	> 140		< 10	> 10	> 20	> 30	> 45	> 60							
1	Ranger T786 DLL	–	391	105	11	0	11:24:00	5	0	0	0	19 km/h	224	0	0	0	0	0	94	95	4.1		47:23:24	965 km	14 days 2:52:48
2	Ranger T791 DLL	–	58	10	68	0	7:29:08	3	0	0	0	19 km/h	149	0	0	0	0	0	72	43	5.2		31:22:02	637 km	14 days 2:35:56
3	Ranger T798 DLL	–	364	163	22	0	4:20:24	142	64	10	0	29 km/h	99	0	0	0	0	0	54	211	2.9		22:33:30	690 km	14 days 5:29:42
	Total	–	813	278	101	0		150	64	10	0		472	0	0	0	0	0	220	349					
	Average	–	271	92.67	33.67	0		50	21.33	3.33	0		157.33	0	0	0	0	0	73.33	116.33					





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Control center ready

Real time Alerts Reporting & Incident Management System

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#	Date/Time	Type	Asset	Details	Location	Priority	Ack. By	Ack. Time	Actions
1	25 May 2018 13:13	Overspeeding.	T282 CBE	Vehicle Exceed 85km/h	Iringa Road, Iringa, Tanzania, 6.68 km from Mahenge	MEDIUM	–	–	
2	25 May 2018 11:05	Overspeeding.	T257 CBE	Vehicle Exceed 85km/h	T1, Mbeya, Tanzania, 3.24 km from Uyole	MEDIUM	–	–	
3	25 May 2018 09:27	Overspeeding.	T331 BAE - Fuel	Vehicle Exceed 85km/h	T3, Singida, Tanzania, 7.40 km from Choda	MEDIUM	–	–	

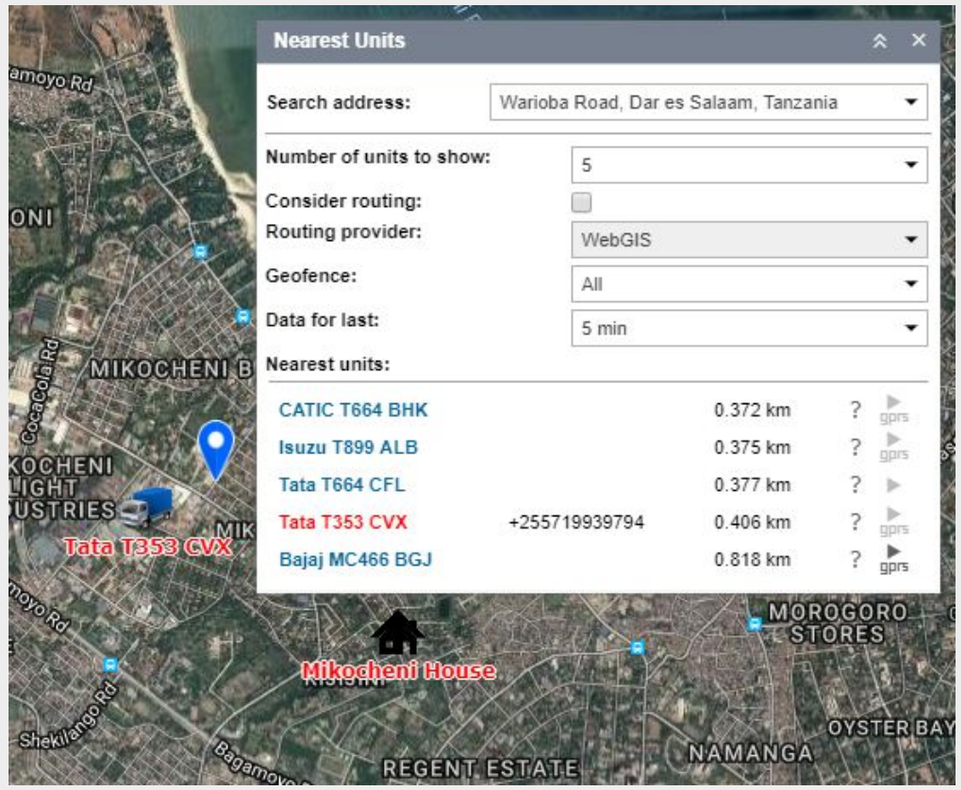
Acknowledge

Asset T331 BAE - Fuel

Details Vehicle Exceed 85km/h

Notes Called fleet supervisor to inform on the incident at 3:30 PM 25-02-2017

Acknowledge



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Internet of Things (IoT) - Example #1

Dsm Corridor Group needed;

- Fuel monitoring
- Driving behaviour assessment
- Fleet utilization analytics
- Pro-Active Maintenance planning
- Fleet records management

Solution Delivered.

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Acute Fuel Monitoring

Report Templates

Report Result

- Summary
- Detailed Breakdown
- Fuel fillings
- Fuel deficits

1 of 1 | Items from 1 to 2 of 2 | 50 | Clear

№	Grouping	Beginning	Initial location	End	Final location	Mileage	Fuel Consumed	Avg consumption
	TATA T545 DHC	05.03.2018 11:10:26	Dar Es Salaam, Coca Cola Rd.	08.03.2018 18:05:02	Dar Es Salaam, Coca Cola Rd.	116 km	45.77 lt	39.62 lt/100 km
	TATA T694 BXU	06.03.2018 11:17:08	Dar Es Salaam, Coca Cola Rd.	08.03.2018 11:02:26	Dar Es Salaam, Nelson Mandela Road	155 km	18.08 lt	11.65 lt/100 km

№	Grouping	Time	Location	Initial fuel level	Filled	Final fuel level
1	TATA T545 DHC	10.03.2018 09:55:52	Dar Es Salaam, Coca Cola Rd.	40.20 lt	75 lt	110 lt
2	TATA T694 BXU	06.03.2018 11:22:46	Dar Es Salaam, Coca Cola Rd.	30.40 lt	80 lt	111 lt

№	Grouping	Beginning	Initial location	Time	Deficit
1	TATA T545 DHC	05.03.2018 15:55:00	Dar Es Salaam, Madoto Road	05.03.2018 15:57:58	20.40 lt
2	TATA T694 BXU	-----	-----	-----	-----

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Planned repairs, automated reminders, cost accounting

Services

Due	Overdue	In progress
0	5	0

Units

Active	In service
73	0

Intervals

Total: 6

Cost per 1 km (USD)

Total cost/Total mileage: 0

Interval	Frequency	Advance notice
Defensive Driving Certification Renewal Quartely This alert is to remind when the driver's license needs to be renewed	3 months	30 days
Driving License Renewal	3 years	30 days
HSE Training Bi annually	6 months	30 days

Service	Unit	Term of completion: Any
Major Trucks 45000 Kms/ 180 Days	T261 BXH	Overdue: 334 km
Major Trucks 45000 Kms/ 180 Days	T411 DFE	Overdue: 136 days
Major Trucks 45000 Kms/ 180 Days	T633 DFA	Overdue: 524 km
Major Trucks	T796 ATE	Overdue: 138 days

← Unit: Ford T364 BTM

Unit info | Services | Assigned inter

Current mileage (km): 201 073

Current engine hours: 310

Total cost: 0 USD

Cost per 1 km: 0 USD

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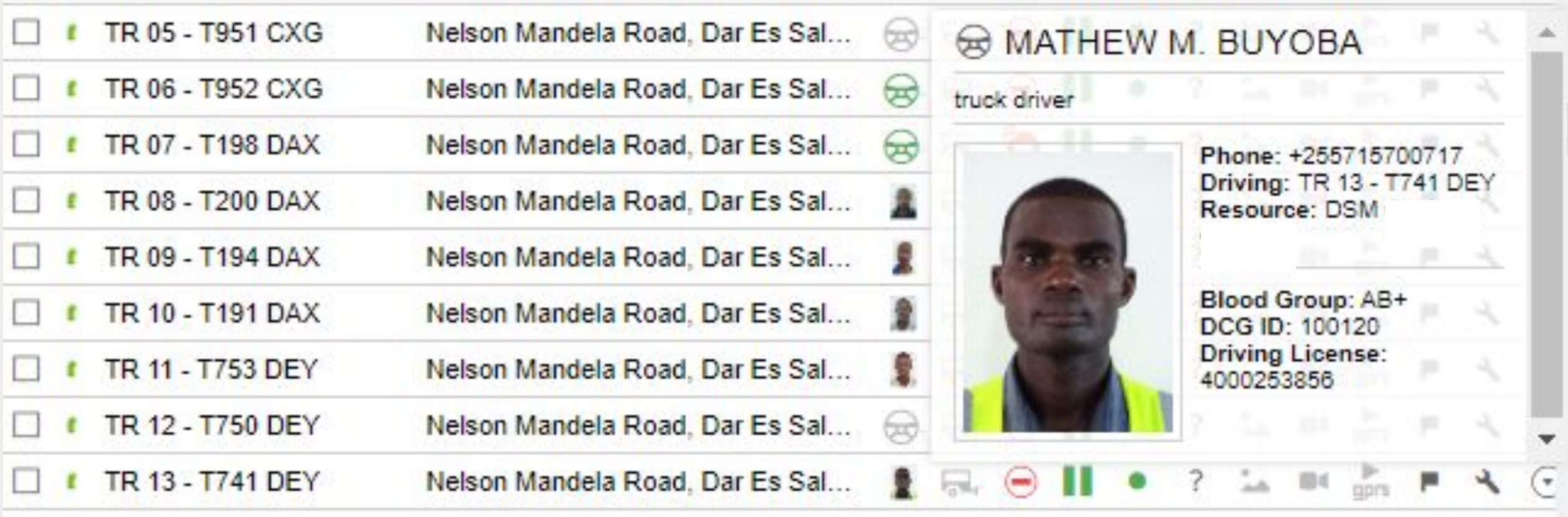
Who is behind the wheel - Real time monitoring



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Internet of Things (IoT) - Example #2

Twiga Cement needed;

- Fleet Utilization Analytics
- Logistics Optimization

Solution Delivered.

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End to End Logistics management & monitoring

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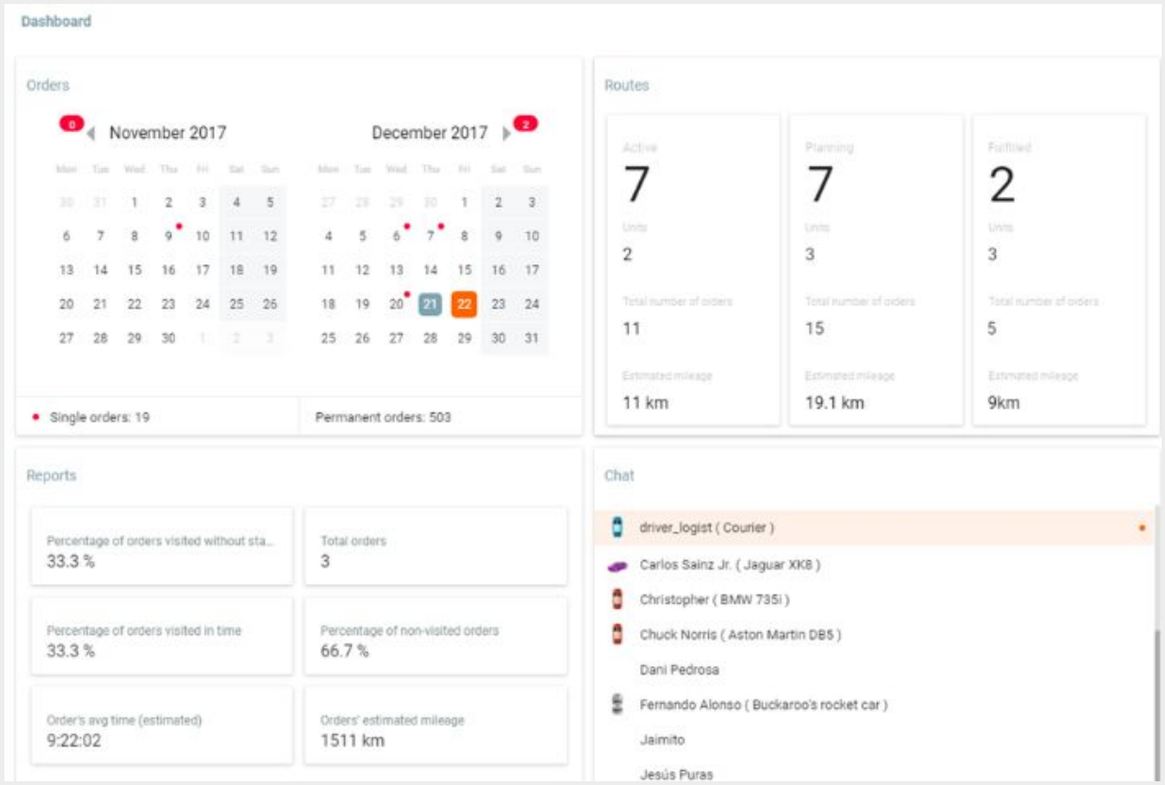
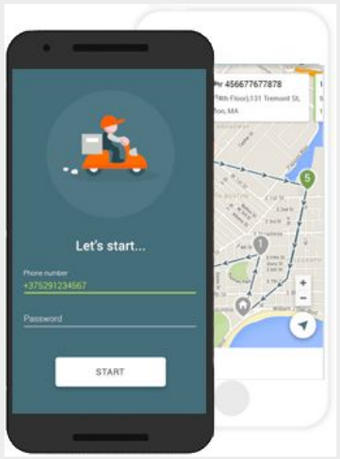
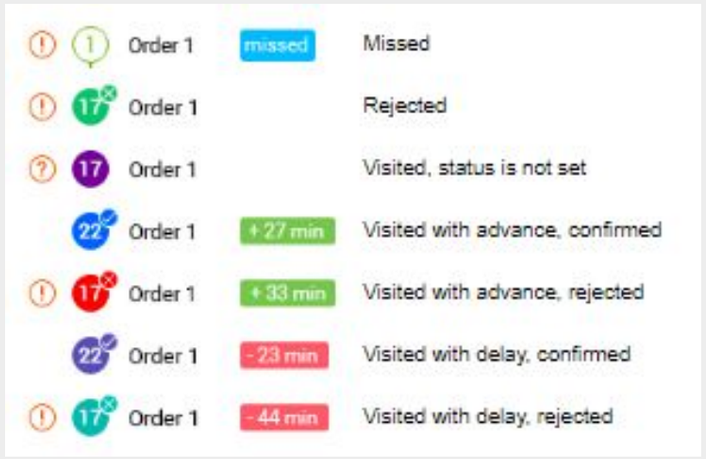
Logistics optimization







Route	Driver	Estimated ...	Deviation	Estimated mile...
Horse T442 D...	SALEHE SA...	02.01.2020 1...	-1:49:12	0.00 km
Horse T442 D...	SALEHE SA...	06.01.2020 1...	-0:13:11	0.00 km
Horse T506 D...	HAMAD AB...	06.01.2020 1...	-4:51:24	0.00 km
Horse T208 C...	ALLY HAMISI	07.01.2020 1...	-1 days 10:2...	18.95 km
Horse T208 C...	ALLY HAMISI	08.01.2020 0...	-8:31:20	27 km
Horse T208 C...	ALLY HAMISI	09.01.2020 1...	-18:06:01	21 km
Horse T506 D...	HAMAD AB...	09.01.2020 1...	-18:28:51	0.00 km
Horse T130 D...	RICHARD F...	09.01.2020 1...	-1 days 3:11:...	185 km
Horse T500 D...	RODRICK K...	09.01.2020 1...	-2 days 3:52:...	185 km
Horse T208 C...	ALLY HAMISI	09.01.2020 1...	-1 days 0:40:...	18.95 km
Horse T506 D...	HAMAD AB...	14.01.2020 0...	-0:03:40	0.00 km
Horse T208 C...	ALLY HAMISI	14.01.2020 0...	-9:04:21	0.00 km
Horse T130 D...	RICHARD F...	14.01.2020 0...	-2:26:10	0.00 km
Horse T506 D...	HAMAD AB...	14.01.2020 1...	-14:12:49	21 km
Horse T506 D...	HAMAD AB...	17.12.2019 1...	-2 days 12:4...	1137 km
Horse T442 D...	SALEHE SA...	18.12.2019 1...	-0:30:38	0.00 km
Horse T442 D...	SALEHE SA...	18.12.2019 1...	-1 days 20:2...	185 km
Horse T208 C...	ALLY HAMISI	19.12.2019 0...	-2:22:13	0.00 km
Horse T500 D...	RODRICK K...	20.12.2019 0...	-2 days 11:4...	1137 km
Horse T208 C...	ALLY HAMISI	20.12.2019 0...	-16:00:51	18.95 km
Horse T506 D...	HAMAD AB...	23.12.2019 1...	-3 days 20:2...	1137 km
Horse T500 D...	RODRICK K...	27.12.2019 1...	-1:31:07	0.00 km
Horse T508 D...	STANLEY S...	27.12.2019 1...	-0:39:14	0.00 km
Horse T130 D...	RICHARD F...	30.12.2019 1...	-6:00:00	0.00 km

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Internet of Things (IoT) - Example #3

Oilfield Movers needed;

- Driving behaviour scorecarding
- Driver Fatigue & Distraction alerting

Solution Delivered.

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In Depth Data Analysis

BI - REPORTS

AFRITRACK

Registration	Driver	General Alerts						Speeding (Km/h)				Avg Speed (Km/h)	Stop Time (min)						Total Trips	Penalties	Rank	Ranking	Engine Hours	Mileage	Total Duration
		After Hour Trips	Harsh Braking	Harsh Acceleration	Harsh Cornering	Excess Idling	Idle Time	> 80	> 100	> 120	> 140		< 10	> 10	> 20	> 30	> 45	> 60							
TR 01 - T353 CJW	THOBIAS GIBA	19	14	5	4	45	1 days 0:55:30	0	0	0	0	5 km/h	160	7	0	0	0	0	37	776	1.8		10:25:20	60 km	6 days 4:45:36
TR 02 - T358 CJW	DICKSON M. NKAYAMBA	31	18	1	1	57	1 days 3:56:36	1	0	0	0	8 km/h	169	0	0	0	0	0	72	665	1.8		11:55:44	103 km	8 days 12:14:20
TR 04 - T954 CXG	SELEMAN MOHAMED	28	10	2	4	87	1 days 9:33:48	0	0	0	0	5 km/h	289	0	0	0	0	0	61	666	1.8		15:39:08	88 km	8 days 8:38:50
TR 12 - T750 DEY	SEBASTIAN BATISTA	7	3	1	1	291	7:20:14	0	0	0	0	6 km/h	57	0	0	0	0	0	19	184	3.1		3:33:36	23 km	7 days 23:43:34
TR 09 - T194 DAX	HASSAN S. SADICK	10	4	0	1	24	10:05:24	0	0	0	0	7 km/h	78	0	0	0	0	0	22	176	3.2		4:48:16	36 km	7 days 23:46:06
TR 05 - T951 CXG	HENRY MBUMI	31	2	0	0	61	1 days 2:43:04	0	0	0	0	6 km/h	129	0	0	0	0	0	64	126	3.7		9:53:18	60 km	8 days 11:49:30
TR 10 - T191 DAX	JONES MKOJERA	11	2	0	0	12	6:35:58	0	0	0	0	7 km/h	46	0	0	0	0	0	19	87	4.2		3:17:14	24 km	5 days 3:38:58
TR 08 - T200 DAX	HIJA HIJA	8	1	0	0	15	8:40:54	0	0	0	0	7 km/h	42	0	0	0	0	0	15	58	4.8		3:12:14	24 km	7 days 21:27:28
TR 15 - T832 CWD	ANGUS ROWA	9	0	0	0	0	4:50:04	0	0	0	0	10 km/h	16	0	0	0	0	0	21	0	6		2:08:22	21 km	2 days 23:08:48
TR 16 - T834 CWD	JOSEPH W. URASSA	17	1	2	0	57	1 days 1:43:36	0	0	0	0	9 km/h	127	0	0	0	0	0	47	0	6		6:03:16	54 km	8 days 0:40:34
	Total	**325**	**103**	**23**	**16**	**923**		**53**	**0**	**0**	**0**		**1994**	**7**	**0**	**0**	**0**	**0**	**701**	**5312**					
	Average		**5.72**	**1.28**	**0.89**	**51.28**		**2.94**	**0**	**0**	**0**		**110.78**	**0.39**	**0**	**0**	**0**	**0**	**38.94**	**295.11**					

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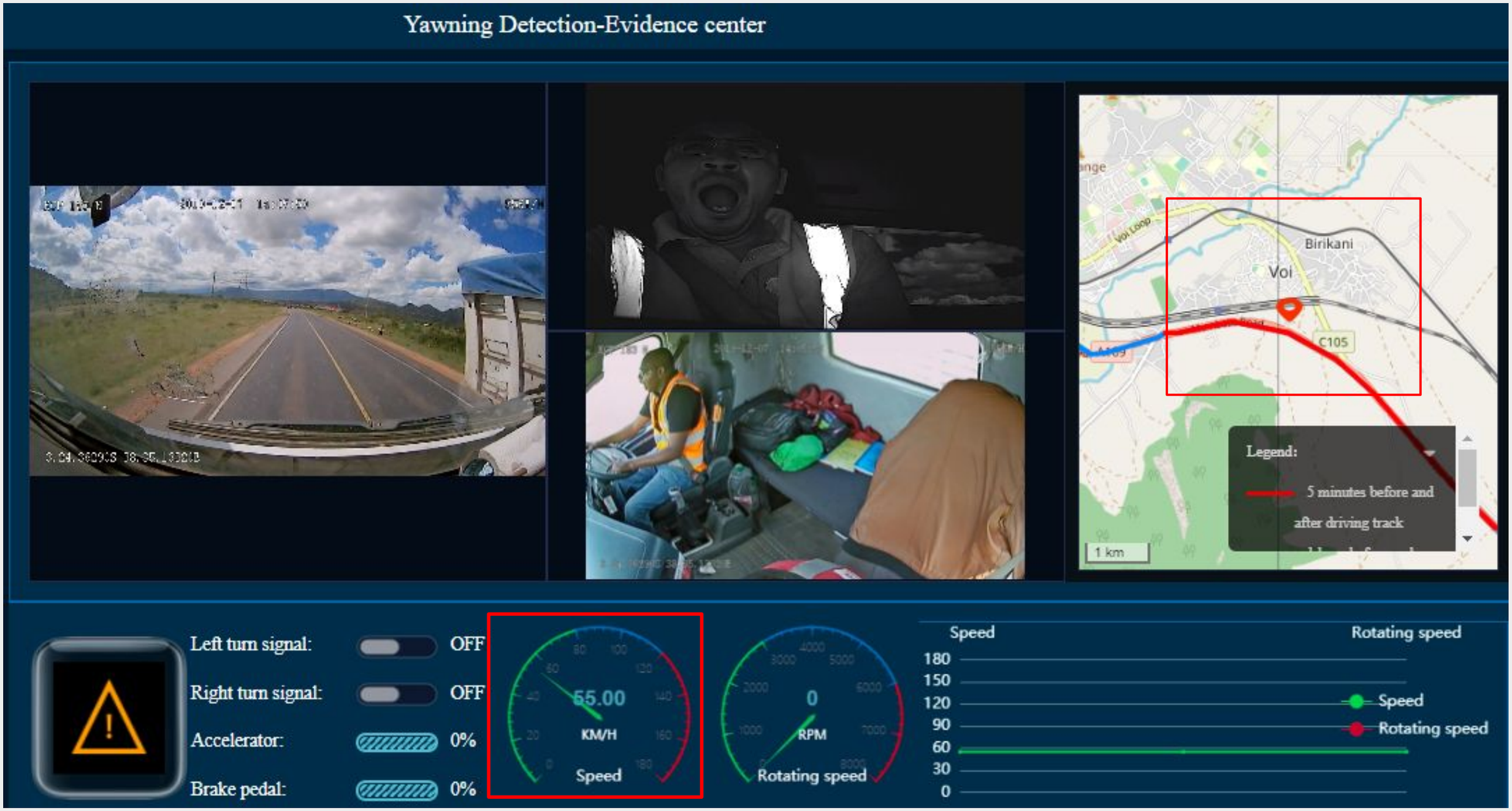
AI detected Yawning



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AI detected phone use

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AI detected fatigue driving

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Internet of Things (IoT) - Example #4

GARDAWORLD;

- Realtime Guard Patrol Monitoring
- Guard KPI tracking

Solution Delivered.

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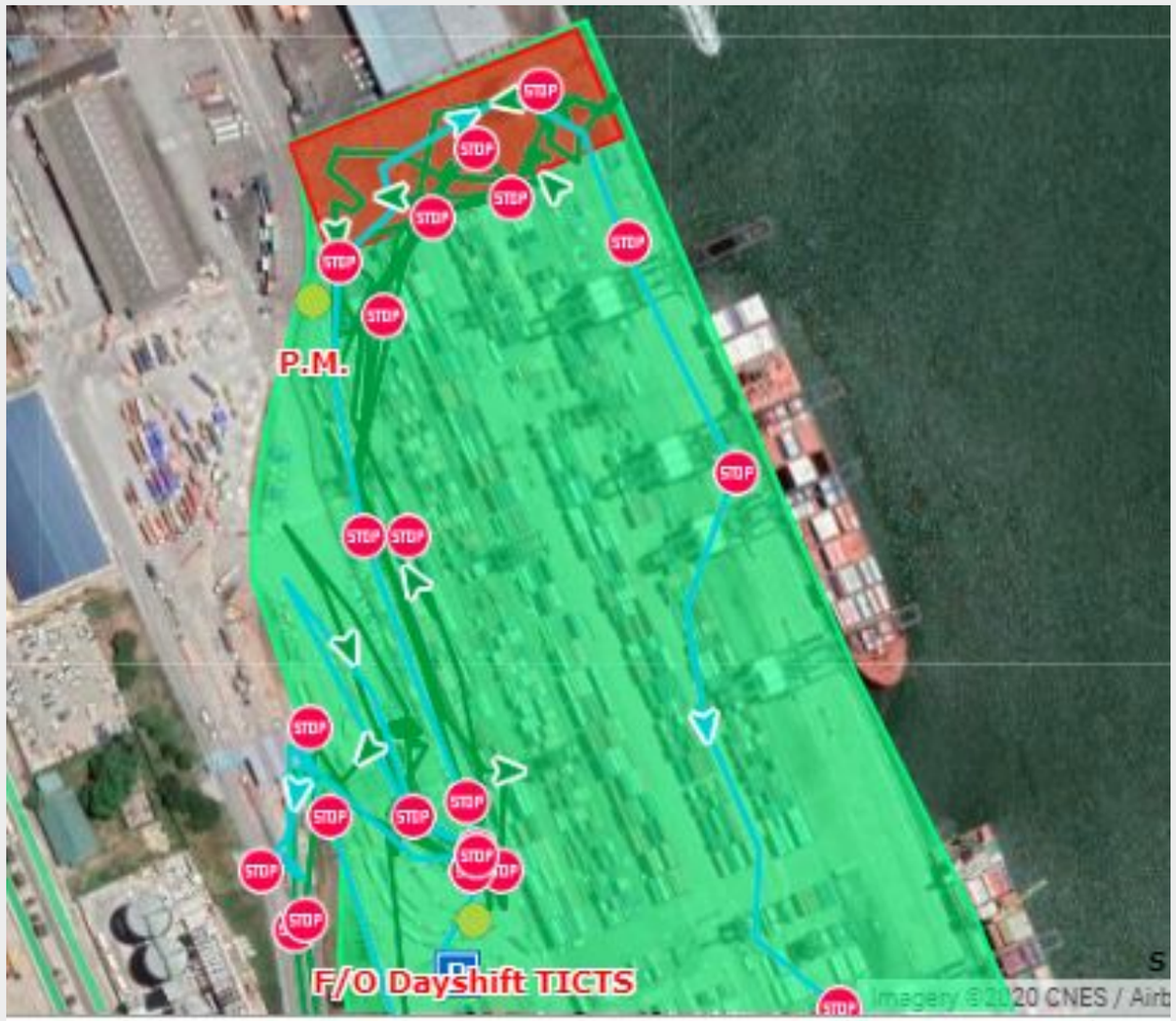
Real time workforce monitoring



End	Final location	Duration	Distance
13.01.2020 13:58:32	Dar Es Salaam, Nelson Mandela Road	6:07:34	6.68 km
13.01.2020 17:26:59	Dar Es Salaam, Nelson Mandela Road	1:18:03	3.04 km

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Other Projects

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IoT : Train tracking

Real time visibility

- Geo location and status
- Direction headed to
- ETA to planned stop

Instant Notifications

- Entering restricted areas
- Stopped for longer than necessary
- PANIC - need help

Actionable Insights

- Heatmaps of most overstay areas
- Journey records with costs per kms
- Fuel consumption by trips

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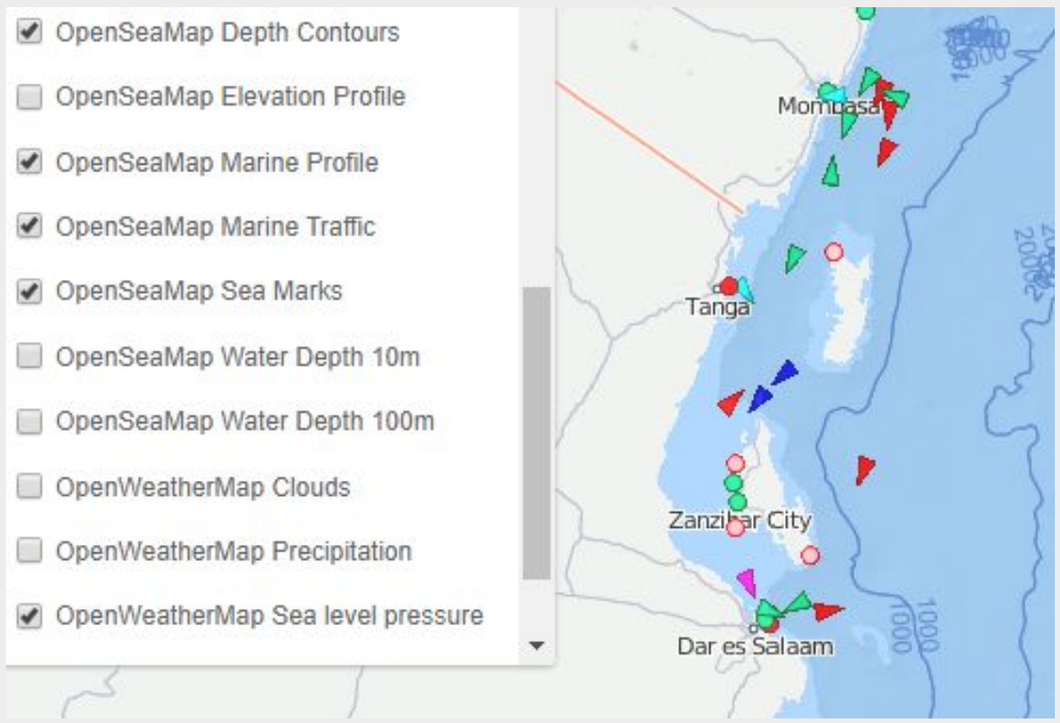
IoT : Cargo Vessel Tracking

Real time visibility
- Geo location and status
- Course headed
- ETA to planned stop

Instant Notifications
- Entering restricted areas
- Stopped for longer than necessary
- PANIC - need help
- Water rising

Actionable Insights
- OpenSeaMap integration
- Journey records with costs
- Ports visited and time spent at port



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IoT : Container Tracking

Real time visibility

- Geo location and status
- ETA to planned stop

Instant Notifications

- Entering restricted areas
- Stopped for longer than necessary
- Tampering alert
- Unlock alert

Actionable Insights

- Lock/ Unlock reports
- Trips by lock
- Time spent at terminal/ in transit

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IoT : Temperature & Humidity Controlled Storage

Real time visibility

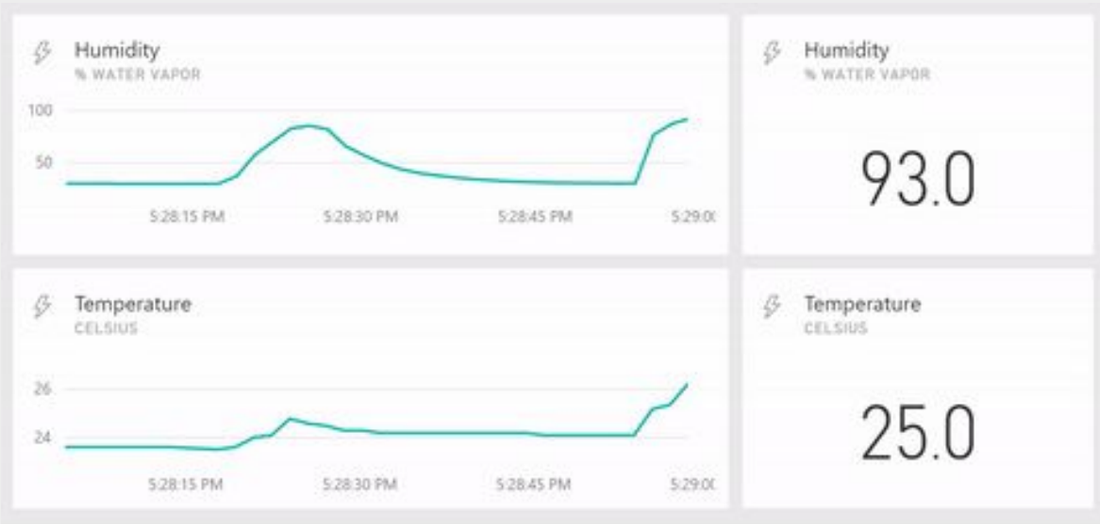
- Temperature & Humidity by storage area
- Door open / close
- Tagged items in storage

Instant Notifications

- Door opened after service hours
- Door left open
- Unauthorised item leaving store

Actionable Insights

- Temperature & Humidity trend by storage area
- Number of times accessed after service hours



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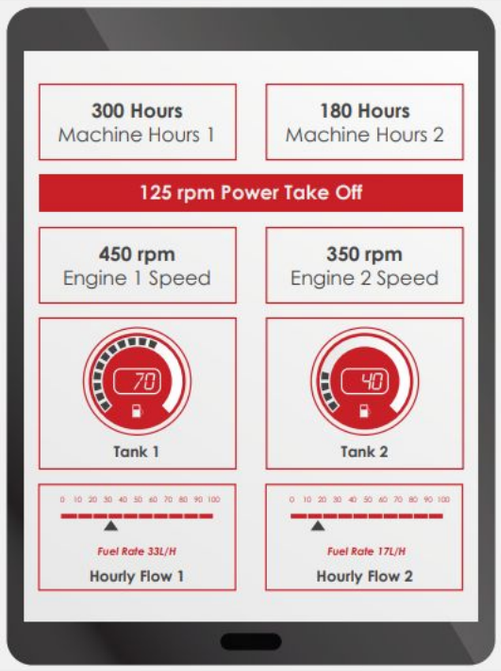
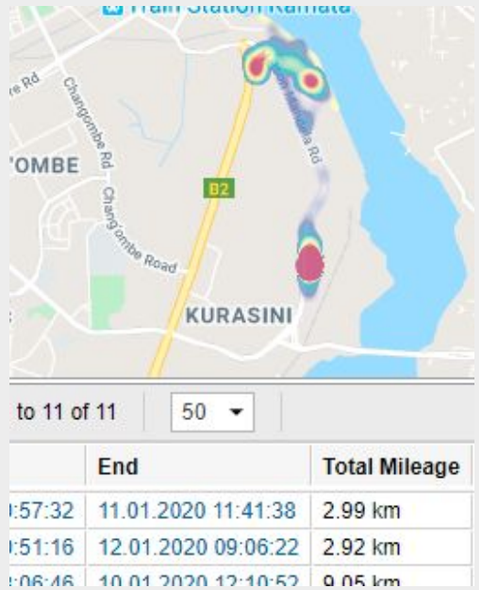
IoT : Heavy Machinery

Real time visibility
- Geo location and status
- Hours operated
- Operator onboard

Instant Notifications
- Entering restricted areas
- Stopped for longer than necessary
- Over utilization
- Unbilled operations

Actionable Insights
- Better refueling practices
- Increase operation time
- Reduce equipment downtime





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In Closing...

"If you want to go fast, go alone. If you want to go far, go together."
African Proverb

Internet of Things

Track Everything

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THANK YOU!

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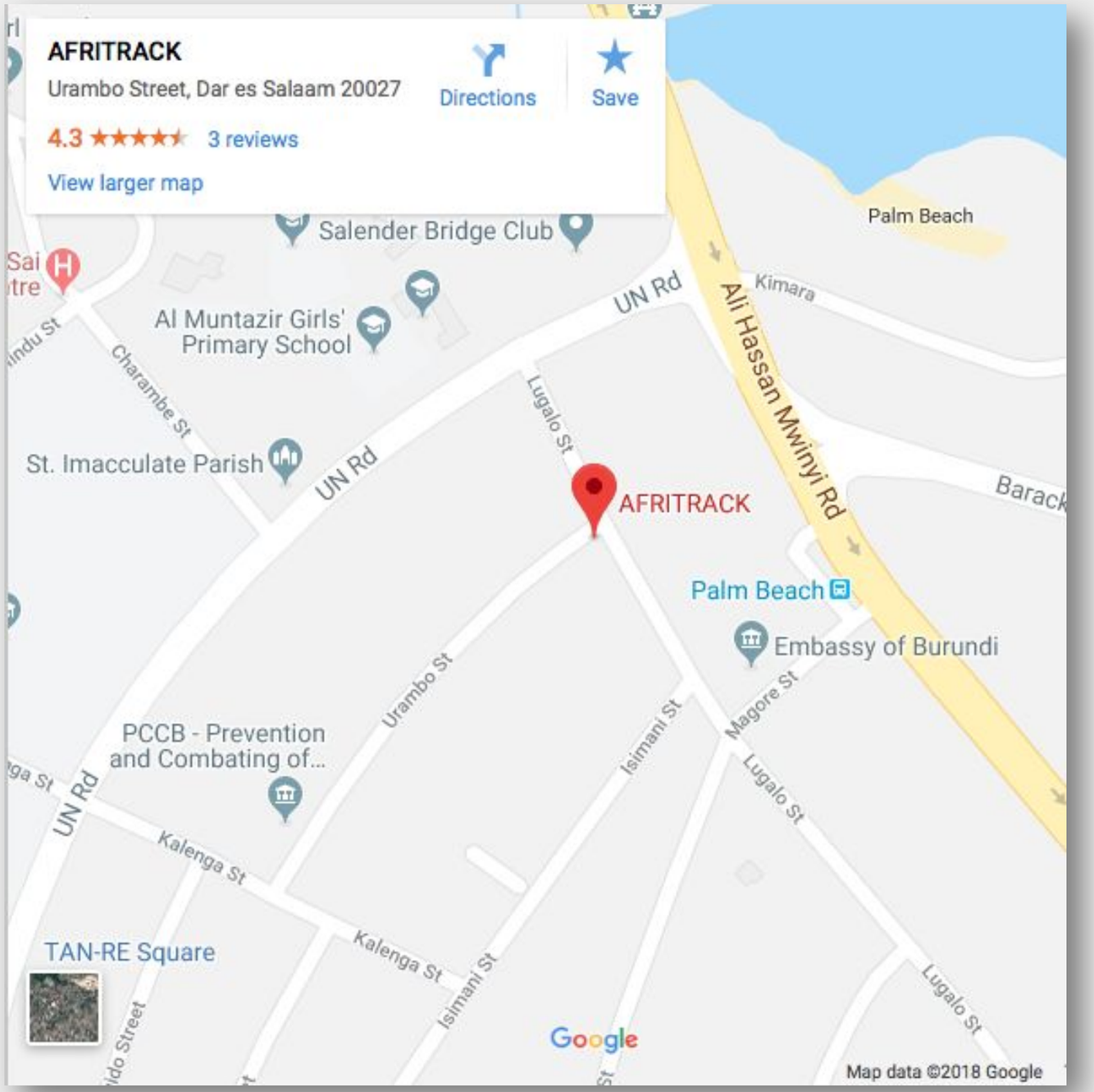

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