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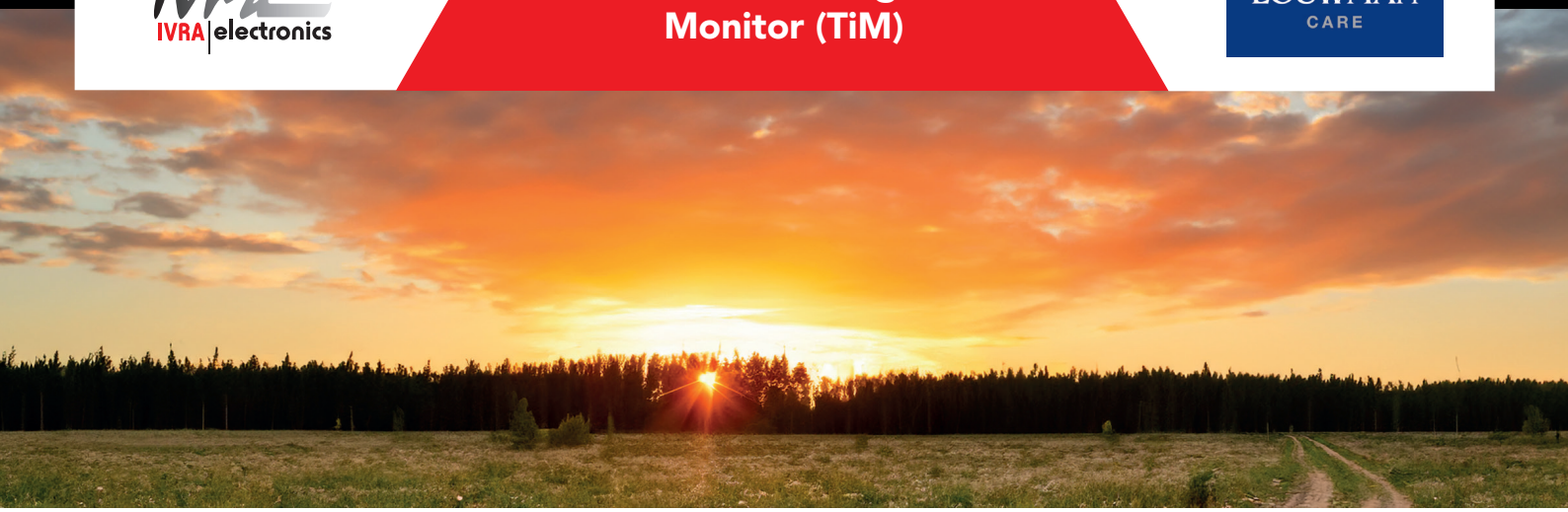
Telemetric Intelligence Monitor (TiM)



Why use the Telemetric Intelligence Monitor (TiM) in the scooter?

In the Netherlands thousands of people with mobility limitations use the scooter to move from one place to another. Users fully depend on the scooter; when it breaks down or system errors occur, they might be in danger or unable to leave their house. Besides reliability, the general quality of the scooter, adequate customer service contact and the interaction with the scooter are points of attention for users.

Medical supply companies and staff also experience challenges in maintaining the scooter or respond adequately to an error. At the moment, there is no insights into causes, frequency or severity of glitches and defects, therefore often times a much bigger maintenance is provided than is actually needed.

Both the user, care giving personnel or medical staff would all benefit from more data from the scooter. The staff needs more insights into the technical status of the scooter so it can act faster or preventatively. More data and information can help the user of the scooter to interact with the scooter more sustainably so it will be more reliable when used.

To receive this data IVRA Electronics BV, in cooperation with Welzorg, developed the Telemetric intelligence Monitor (TiM) device.

What is the TiM?

De Telemetric intelligence Monitor (TiM) by IVRA Electronics BV is a device that collects real time data directly from the scooter. This data is transferred to a personalized dashboard and sends a signal if and what action should be taken. This system does not only help to save costs by taking preventative measures and pinpoints the exact problem, it also ensures the safety of the person using the scooter.

Wat does the TiM measure exactly?

The TiM retrieves a complete package of information from the scooter and sends this once every four hours to the server. The data consists of battery voltage and the charging/discharging cycle of the battery. Additionally, it also measures data surrounding the scooter such as temperature and humidity. Even while driving, the TiM measures different variables such as battery power, the position and the distance traveled, acceleration and the angle of the scooter. The TiM also receives the error notifications from the controller and send them, with a time stamp, to the server. All raw data is processed before the TiM transmits it to the dashboard. Through the personalized dashboard the caretaker retrieves all the information.

What is the data used for?

All the information that the TiM retrieves is essentially used to keep the scooter in the most optimal state. This happens in two ways: on the one hand by targeting vehicle maintenance more specifically and efficiently. On the other hand by helping the user of the scooter treat the scooter and care for it in the most sustainable way.

The information in the dashboard can be used to do a analysis before maintenance personnel is on location. The server generates targeted signals for e.g. increased cable resistance, a battery imbalance, an increased energy consumption or one of the error signals from the controller in the scooter. With this information it can be determined whether early maintenance is needed or what needs to be specifically replaced during regular maintenance.

The dashboard is capable of sending a direct message to the user of the scooter e.g. via text or e-mail. Via this message the user can be asked to charge the battery if a deep discharge might take place. The system monitors if any action is taken in the next few days or if a reminder is necessary.

Lastly, the TiM also offers the possibility of sending a warning signal if there is an indication that the scooter has been in an accident and tilted.

By measuring and transferring the data to the care giving organization, the TiM not only provides the information needed to efficiently maintain the scooter but most importantly, offers protection, safety and comfort to its user.

Foutcode Scoot

TiM laatst actief

2020-09-08 01:38:01

 # Ontvangst TiM afgelopen 24 uur

3

Foutmelding: Vrijloop

Datum/Tijd
2020-05-28 14:08:38
2020-05-28 14:09:23
2020-05-28 14:34:39
2020-05-28 14:36:08
2020-05-29 11:48:26

5 Totaal

Foutmelding: Neutrale stand

Datum/Tijd
2020-05-29 12:45:00
2020-05-29 12:42:40
2020-05-29 12:41:22
2020-05-29 08:26:20
2020-05-28 14:38:49
2020-05-28 14:36:58

6 Totaal

Foutmelding: Acculader aangesloten tijdens wegrijden

Datum/Tijd
2020-05-29 08:57:21

1 Totaal

Foutmelding: Overige Erros

Datum/Tijd	Overige Errors
2020-08-15 12:45:20	Control System in Sleep Mode
2020-07-25 13:22:12	Control System in Sleep Mode
2020-07-22 13:18:09	Control System in Sleep Mode
2020-07-15 13:02:10	Control System in Sleep Mode

Staat accu

Laadfactor Scootmobiel

1,23

Gemiddeld

XLR-Verbinding

Datum/Tijd	Status
2020-09-07 07:00:36	
2020-09-04 11:02:51	
2020-09-01 10:43:31	
2020-08-30 10:27:08	
2020-08-27 10:34:47	
2020-08-17 12:42:57	
2020-08-13 09:41:39	

Balans/Onbalans

Datum/Tijd	Verschil in Spanning
2020-05-29 08:55:23	0,30
2020-07-20 08:49:05	0,08
2020-07-27 13:09:16	0,08
2020-07-30 09:14:59	0,08
2020-08-03 12:25:49	0,08
2020-08-13 09:41:39	0,08
2020-07-07 07:44:44	0,07

Laadstroom lader

Datum/Tijd	Max. laadstroom
2020-09-07 07:00:36	8,1
2020-09-04 11:02:51	8,2
2020-09-01 10:43:31	8,1
2020-08-30 10:27:08	8,2
2020-08-27 10:34:47	8,1
2020-08-17 12:42:57	8,2
2020-08-13 09:41:39	8,3

Piekspanning tijdens rit tussen twee laadcycli

Datum/Tijd	Spanning (V)	Stroom (A)	Afstand (km)	Temperatuur (C)
2020-09-07 07:00:36	23,9	75	6	21
2020-09-04 11:02:51	23,7	68	10	21
2020-09-01 10:43:31	24,0	61	9	21
2020-08-30 10:27:08	22,0	66	32	20
2020-08-27 10:34:47	22,7	65	24	21
2020-08-17 12:42:57	23,9	83	8	34
2020-08-13 09:41:39	22,8	72	31	36

Gebruik Scoot

Scootmobiel Gekanteld

Datum/Tijd
2020-05-28 13:59:21

1 Totaal

Laagspanningswaarschuwing

Datum/Tijd

0 Totaal

403,02

Totaal gereden kms

Lading Voltooid

Datum/Tijd	Max Spanning (V)	Max. laadstroom
2020-07-21 17:07:32	33,8	8,1
2020-07-07 07:44:44	33,7	8,1
2020-07-18 09:08:32	33,7	8,2
2020-07-29 09:48:22	33,7	8,2
2020-07-25 12:24:21	33,6	8,2
2020-07-30 09:14:59	33,6	8,2
2020-09-07 07:00:36	33,6	8,1

Ampere uur versus km

Datum/Tijd	Capacity (Ah)	Afstand (km)
2020-09-07 07:00:36	7,7	6,5
2020-09-04 11:02:51	20,7	18,1
2020-09-01 10:43:31	14,1	11,7
2020-08-30 10:27:08	39,4	33,7
2020-08-27 10:34:47	28,8	24,3
2020-08-17 12:42:57	11,7	11,7
2020-08-13 09:41:39	32,0	33,1

Bandenspanning

Datum/Tijd	Afstand (km)	Energy(Wh)
2020-08-30 10:27:08	33,7	967
2020-08-13 09:41:39	33,1	796
2020-08-03 12:25:49	26,5	695
2020-07-20 08:49:05	26,0	656
2020-08-10 07:42:45	25,0	658
2020-08-27 10:34:47	24,3	711
2020-07-30 09:14:59	21,6	579