HeERO 112

Harmonised eCall European Pilot

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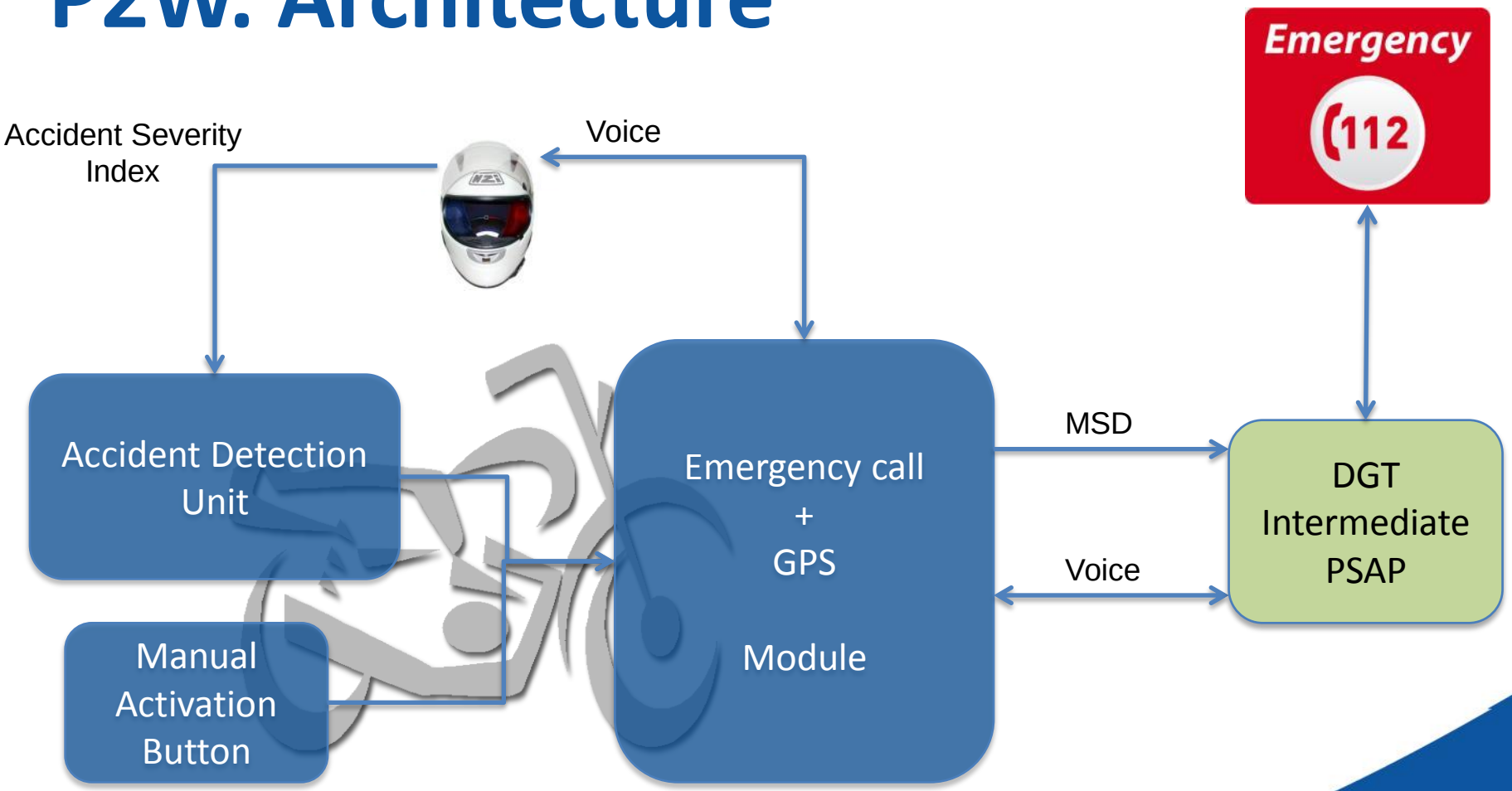
Spain Pilot site
Powered two-wheelers and eCall

HeERO International Conference
27 November 2014
Madrid, Spain

Agenda

- P2W eCall system architecture
- Questionnaire
- Tests
  - Phase 1. Accident detection
  - Phase 2. System integration
- Extended MSD proposal
- Conclusions & Comments

P2W. Architecture



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Questionnaire

- Web based survey for PTW drivers
  - **2 months**: Feb.-Mar. 2014
  - **636** questionnaire completed
- Structure
  - Part 1: demographics + generic info about accidents involving PTW
  - Part 2: specific questions about eCall for PTW (technical / functional, willingness to pay, privacy concerns)
- Dissemination through well-known motorcycle pilots (former RACC-sponsored pilots) Twitter accounts (Laia Sanz, Marc Márquez, Dani Pedrosa, …)

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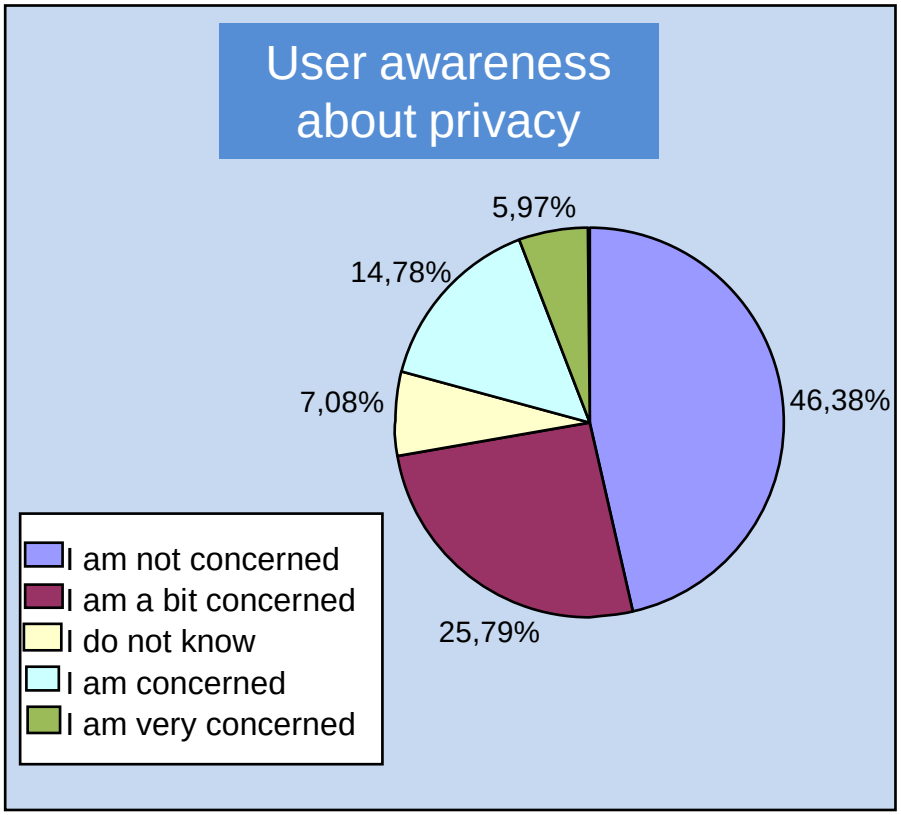
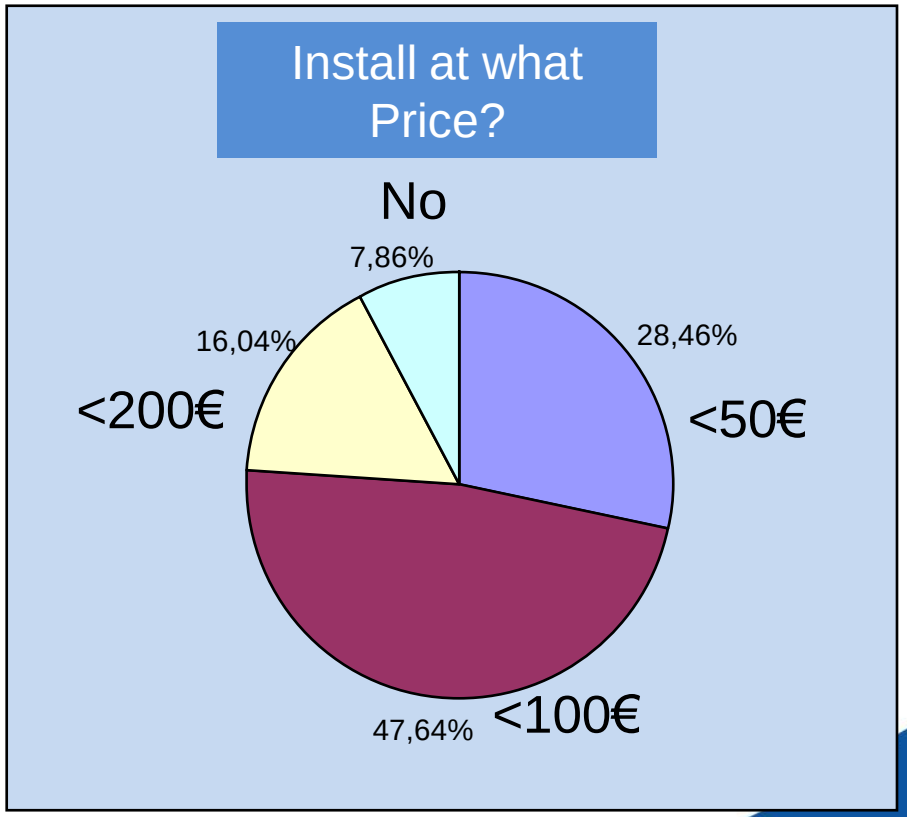
Additional information?

- Medical information for pilot and passenger
- Biometrical information during the accident
- Accident reconstruction, black box
- Meteorological conditions during the accident

Privacy & after-market





Questionaire. Conclussions

- Level of acceptance of eCall service for P2Wers
  - Large majority like to have eCall in motorcycles
  - Slightly smaller proportion would change their helmet to have the full functionality of the system
  - Users are receptive to pay for aftermarket devices
- On the expectations of users:
  - Motorists expect a high functionality from the eCall service for motorcycles
  - Expects Additional features (sending of personal data and medical history of the driver and passenger, etc.).

Test plan

- Phase 1. Accident detection
  - IVS accident detection (4) + helmet severity index evaluation (10)
  - Delayed by championship organizer injury
  - Initialized in July 2014
  - Few accidents results
- Phase 2. Global architecture
  - Laboratory test with PSAP emulator
  - Test with DGT PSAP

Phase 1. Implementation

- 10 helmets equipped with the impact sensors delivered to “Cuna de Campeones” Race School on 10th of June, 2014.
- Instructions on how to use the helmets were provided to the School in order to make sure every user will handle the helmets in an appropriate way not to lose any single accident data collection.
- Additional accident detection system was equipped in 4 motorcycles.

Accident detection. IVS

- In july 4 motorbikes were equipped with the accident detection system.
- No accident detected

Helmet severity Index

- 10 helmets equipped with the impact sensors
- Delivered to Race School on June the 10th, 2014.
- Instructions given to enssure data collection
- Riders & Helmets

Helmet nº	Rider Initials	Age	Category
6	*CPV*	6	Minimotos
1	*MRC*	9	MiniGP 110
3 y 5	HG	16	CEV
2	AI	11	MiniGP 140
4	AC	11	MiniGP 140
7	RS	13	MiniGP 140
10	GS	10	MiniGP 110
9	FS	12	MiniGP 140

Tests under supervision

Day	Place	Training schedule	Helmet time use (h)	Remarks
10/6/14	Kartódromo Chiva	18:30-20:00h	1	
12/6/14	Kartódromo Chiva	18:30-20:00h	1	HG accident
17/6/14	Kartódromo Chiva	18:30-20:00h	1	
19/6/14	Karting Manises	18:30-20:30h	1,5	
24/6/14	Kartódromo Chiva	18:30-20:00h	1	
26/6/14	Karting Manises	18:30-20:30h	1,5	
1/7/14	Kartódromo Chiva	18:30-20:00h	1	
3/7/14	Karting Manises	18:30-20:30h	1,5	
8/14	Kartódromo Chiva	18:30-20:00h	1	
10/7/14	Karting Manises	18:30-20:30h	1,5	
15/7/14	Kartódromo Chiva	18:30-20:00h	1	
17/7/14	Karting Manises	18:30-20:30h	1,5	
22/7/14	Kartódromo Chiva	18:30-20:00h	1	
24/7/14	Karting Manises	18:30-20:30h	1,5	
30/8/14	Circuito Velocidad Kotarr ()	17:00-19:00h	0,5	Helmets 3 and 5 not used
31/8/14	Circuito Velocidad Kotarr ()	12:35-14:00h	0,5	Helmet 3 and 5
14/9/14	Estoril ()	11:00-17:00h	1,5h	Helmet 3 not used
15/9/14	Estoril ()	12:00-12:30h	0,5h	Helmet 5 not used

- Another accident reported in private test session 9/7/14 in Chiva circuit. The IVIS did not register any accident.

Race image

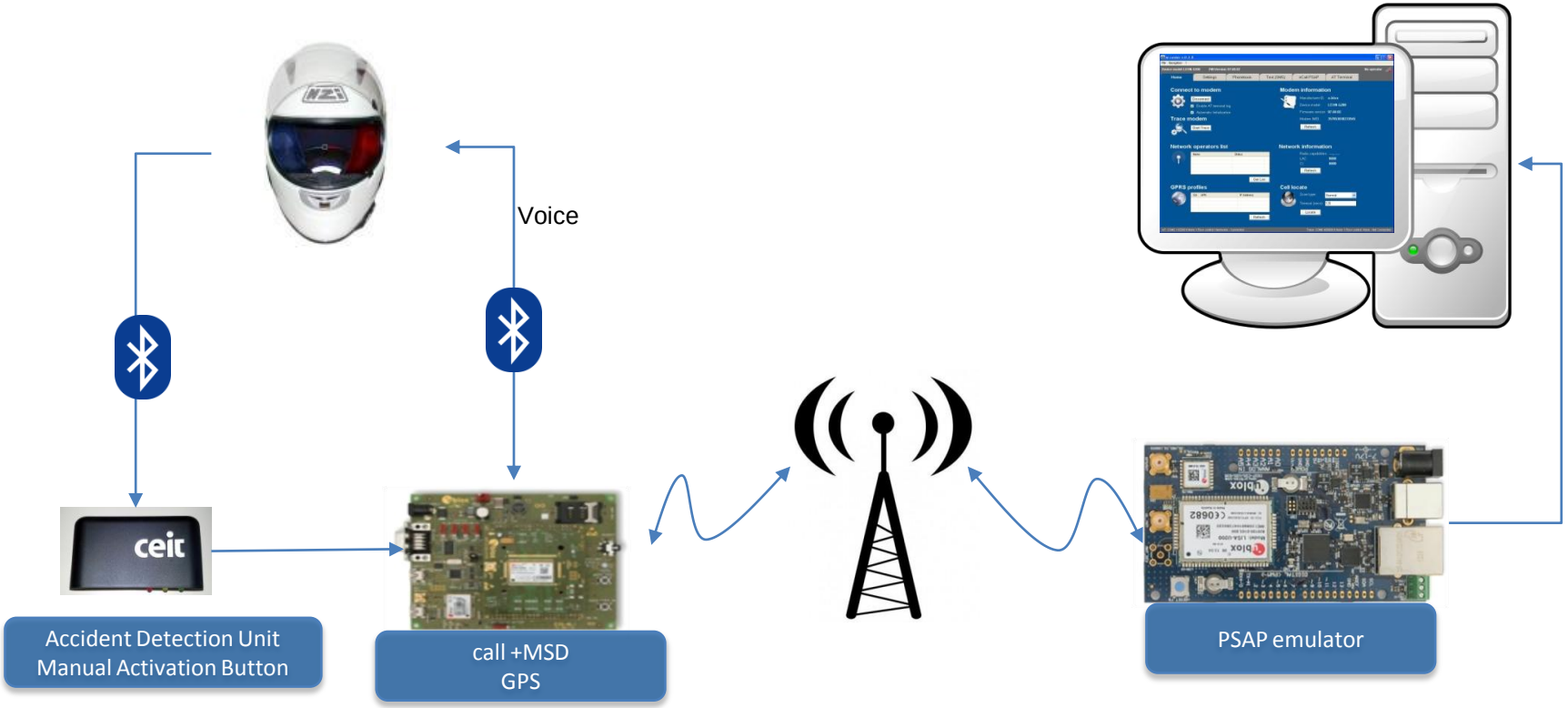
1st accident results

- The track grip was too low
- Motorbike sliced on a curve
- The helmet did not impact on the circuit
- Any measurement could not be registered from helmet sensors

2nd accident

- Caused by pilot inattention on a curve
- Motorbike expelled the rider above the handlebar and felt down impacting with the head on the floor
- The impacted floor was a gravel trap
- Helmet shell and visor were scratched
- NZI analysed the protective padding. It was not affected at all
- The helmet impact detection electronics did not register any event. Low energy transmitted to the pilot

Phase 2.1 Lab architecture



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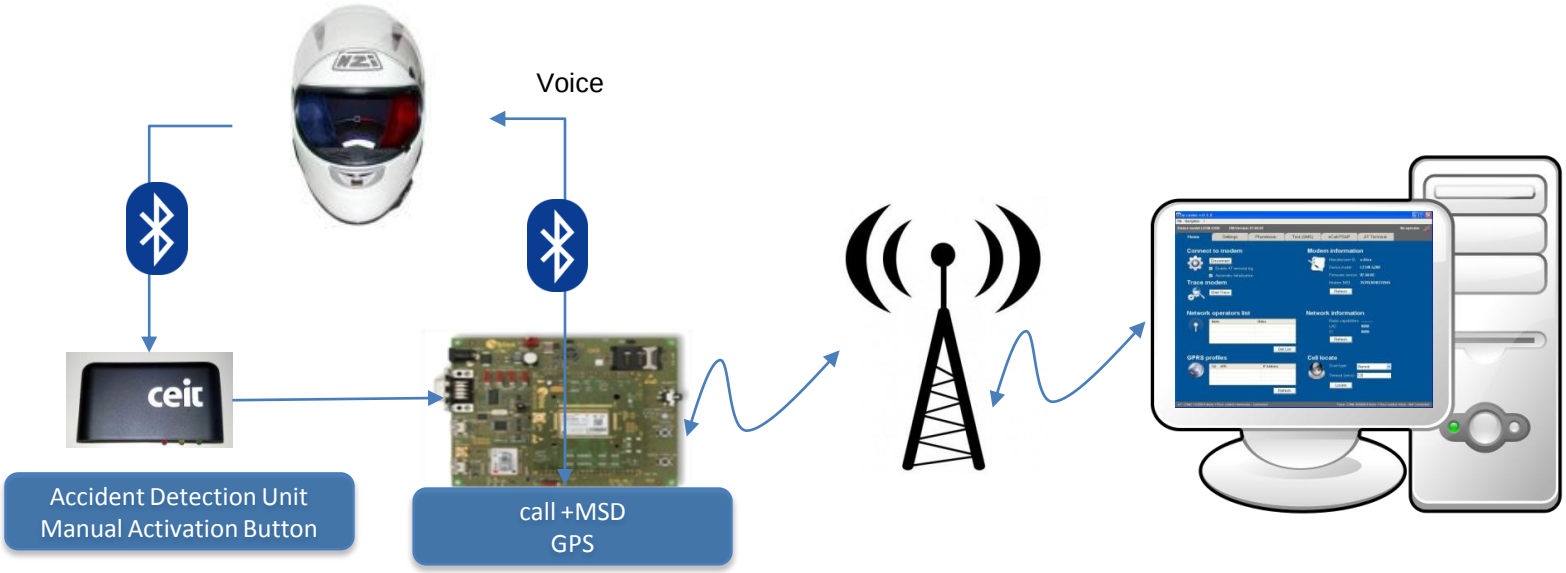
Phase 2.1 Results

Type of call	Total Calls	OK	Failed Calls	Connected withMSD error
Manual	40	39 (97.5%)	0 (0%)	1 (2.5%)
Automatic	40	38 (95.0%)	0 (0%)	2 (5.0%)
Total	80	77 (96.25%)	0 (0%)	3 (3.75%)

Phase 2.2 With DGT Intermediate PSAP



- No voice connection was provided. Remote access to PSAP computer via VPN

Phase 2.2 Results

- 160 calls were made

Type of call	Total Calls	OK	Failed Calls	Connected withMSD error
Manual	79	70 (88.6%)	0 (0%)	9 (11.4%)
Automatic	81	70 (86.4%)	0 (0%)	11 (13.6%)
Total	160	140 (96.25%)	0 (0%)	20 (3.75%)

- During the call couldn’t wait if the MSD was received or not.

P2W. Extended MSD proposal

Name	Size [B]	Type	Description	
Control	1	Integer		
VIN	20	String	VIN number according to ISO 3779	
Time stamp	4	Integer	UTC seconds	
Location	4	Integer	Latitude (WGS-84) in ms	
Service provider			Service provider	
Vehicle type	1	Integer	PTW	
PTW Control	1	Integer	b7	Master sensor in vehicle
			b6	Master sensor in helmet
			b5	Slave sensor communication lost
			b4	Presence of passenger
Slave location	4	Integer	Latitude (WGS-84) in ms	
			Longitude (WGS-84) in ms	
			Direction on degrees	
Master severity	1	Integer	Detection of severity of master device	
Slave severity	1	Integer	Detection of severity of slave device	

Conclussions & Comments

- Questionnaire gives important results about user acceptance and aftermarket system price
- Accident detection test didn’t provide sufficient accidents for obtaining validation results
  - Complementary measurements are needed
  - More systems installed in more races
- Complete test results KPIs and success are similar to car ones
- An extended MSD has been proposed for P2W

Thank you for your attention!
Questions?

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