Project nº **COOP – CT – 2004 – 005935**

Project acronym: **HEBE**

Project title: Mobile Monitoring and Automatic Fall Detection Device for Elderly People Living Alone

Instrument: **Co-operative Research Projects**

Thematic Priority:

Final Report

Period covered: **full duration of the project (November 2004 to April 2006)**
Date of preparation: **August 2006**

Start date of project: **28/10/2004** Duration: **18 Months**

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Project coordinator organisation name: **Fundación Fatronik** Revision **0**

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1 Summary of the Project

1.1 Objectives of the project

Our modern societies are confronted to a new growing problem: the global ageing population. Within few years, almost half of the population is expected to be over 50 years old. This situation brings many associated problems, being the caring and the improvement of the quality of life of elderly one of the majors. Indeed, elderly people do need assistance in their day-to-day life, and provide them with this assistance is not a simple task. Today, different main options to take care of old people exist:

- Old people can live with the rest of their family, which gives to them the support they need in their Activities of Daily Living (ADL). This situation is often difficult to assume, both for the family (due to the constant attention old people may need, and the invasion that can represent in their lives) and for the elderly (because they feel like a burden to their dears);
- Old people can stay living at home and receive support from professional carers, allowing them to maintain a high quality of life and satisfaction. But this solution may be expensive to the social services, and it does not ensure full time vigilance of the elderly;
- Old people can be admitted in a nursing home, which is most often not well accepted by the elderly himself. Furthermore, places in specialized centres are limited and can result expensive.

The general social politic in our societies is to find ways to encourage elderly living longer at their own home, ensuring the necessary vigilance and security at the lower cost possible. Automatic devices to monitor and assist elderly in their Activities of Daily Living (ADL) seem to be a good solution to reach this objective. The European supported CRAFT project Hebe goes that way.

The objective of Hebe is to develop a new assistive device for elderly, to help them stay living longer at home, in better conditions (giving then more autonomy and safety). The system performs different functions to help the elderly in its Activities of Daily Living:

- √ **Activity monitoring:** the day-to-day activity of the elderly is monitored, to be able to detect any abnormal daily activity. For example, if the elderly stays at bed longer than usual, an emergency call would be launched to ask if the elderly would need assistance.
- √ **Automatic fall detection:** the system is able to automatically detect a fall event, and to automatically send an alarm to a call centre with all the necessary information relative to the user and the fall. The call centre can contact the elderly and send the appropriate emergency assistance.
- √ **User localization:** the device is also able to localize the user (via GPS service) in order to give real time position of the user to the call centre when needed (when a fall occurs, or when user is lost and ask for assistance for example).

Fig. 1: Assistance service

Some tele-assistance systems are already available commercially. The most usual one is the tele-assistance service which requires the user to push a button to ask for help. In the case a fall causes loss of consciousness for instance, such system is unable to alert the call centre. Other solutions do include automatic fall detection, but they are limited to indoor use. The system developed in Hebe makes the difference by integrating a set of unseen functions: complete activity monitoring, outdoor user localization via GPS, indoor and outdoor use via global wireless communication networks (GSM / GPRS). As far as identified in the state of the art, no commercial product offers such services yet. Such a complete system brings benefit to the user by allowing improvement of their quality of life without limiting their activity (non intrusive and discrete system, indoor and outdoor use, etc…).

Focusing on the technological side of the project, the main challenge has been the integration of all these functions to a small, light, user friendly, easy to use and portable system. The architecture of the system designed in Hebe is made by:

- **a mobile module** worn by the user, which performs activity monitoring, user localization and automatic fall detection. The mobile module also integrates a "Panic Button", which will allow the user to cancel an automatic alarm (if the situation does not require assistance), or to send a user generated alarm in case of necessity. The major technologies implemented are biaxial MEMS accelerometers for activity monitoring, GPS receiver for localization, and GSM/GPRS communication for data sending.
- **a call center**, which receives the information from the mobile module (via GSM and GPRS), analyzes and saves it. The call centre also identifiers the emergency situation and manage emergency procedures. The call centre is equipped with a set of functions to help medical staff and carers to exploit the information collected by the mobile modules connected to this call centre.

Furthermore, bidirectional voice communication has been implemented between the call centre and the user through the mobile module. This function allows the carers in the call centre to directly communicate with the user in case of emergency, in order to coordinate and optimize the emergency means. Finally, the mobile module is equipped with a complete user interface, both by sound and visual interface.

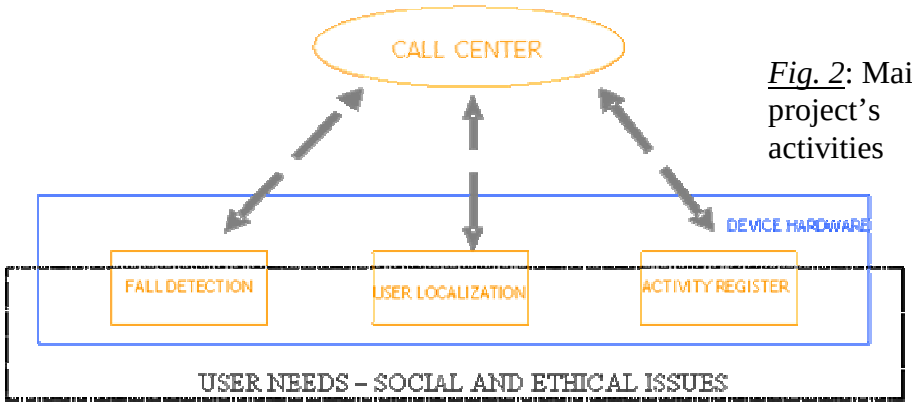

Fig. 2: Main project's activities

1.2 Presentation of the consortium (include coordinator contact details)

To achieve these developments, Hebe consortium has been created in order to compile all competencies necessary to the success of the project. Regarding the RTD performers,

in charge of the R&D and the technical development of the product, the following partners are participating:

- FATRONIK, as a Mechatronics technological centre, is bringing its knowledge and experience in automatic fall detection, in GPS localization, and in wireless communications. FATRONIK is leader of the project (contact person: Guillaume Pérolle – gperolle@fatronik.com 0034-943.00.55.00).
- LIRMM, as a referent centre in robotics, provides valuable experience in hardware design and integration for the mobile module. LIRMM also has extensive experience acquired in other projects on activity monitoring.
- ZENON is a reference in Europe regarding the software and communication developments, and is in charge in Hebe to design, develop and implement the call centre and all applications required to its operating (routines, databases, etc…).

Hebe projects counts also with six small and medium sized companies in its consortium, which are mainly aimed to define requirements and ensure ideal development of the system for future exploitation. Participation of industrial companies is essential to keep close to user needs and industrial reality, so that the system developed in the project will really meet user and industrial needs. These companies are:

- INGEMA has a wide experience in the assistance of elderly people and their relatives, including a special working group on fall events. ICAVI-BIKAIN is specialized in the distribution of products to improve the life conditions of elderly. They both bring to the consortium the vital contact with the final user, playing a central role in the definition of the requirements and validation tests, as well as a good knowledge of this market, its competitors and its requirements.
- COMYMEDIA, NET TECHNOLOGIES and IKNOWHOW are companies specialized in new technologies and telecommunication technologies. Their know-how is very valuable to the project, since they assess the RTD partners to help making the best choices regarding the technologies implemented to the system (communication technologies are core technologies in the development of Hebe).
- WANY ROBOTICS, finally, is a company specialized in the design and commercialization of robotic devices, including focused on elderly and handicapped people. This company brings its knowledge regarding robotics and mobile devices technologies, and will also play a key role, together with ICAVI-BIKAIN, in the dissemination and exploitation of the product developed in the project.

1.3 Summary of the work performed during the project

The project finished end of May 2006, and the main activities carried out in this project are the following ones:

- ***Definition of requirements:*** ethical issues, taking into account final users opinions and feelings about the system (through the organization of discussion groups), and technical requirements, defining the different technical functions that will have to be implemented to ensure the system performing well;

- ***Electronic biomechanical characterization of Activities of Daily Living (ADL) and fall detection***, which includes the generation of typical patterns and the definition of algorithms and methods for automatic signal processing;
- ***Detailed technical definition of the system***, including the technical design of the system: choice of hardware, sensors technologies, integration guidelines, call centre architecture and routines, communications integration that will allow meeting the technical and ethical requirements defined previously. This definition is the base of the system;
- ***Main functions development:*** the three main functions to be integrated in the worn module have been developed: the automatic fall detection, with an algorithm based on the electronic characterisation of the Activity of Daily Living (ADL) to automatically differentiate a fall from any other activity, activity monitoring, with a method based on artificial intelligence (neural networks) to be able to automatically classify the degree of activity of the user, and the user localization via GPS system;
- ***Hardware prototype development:*** the prototype has been developed under industrial requirements, with CMOS components, specific double side PCB, integrating all the required elements in the smaller design. The three functions commented before have been integrated and validated in the prototype;
- ***Call centre development:*** the call centre that supports all the services offered by Hebe have been developed, with its Data Base, its forms to access and edit the information, as well as all the functions specific to Hebe: alarm management system, fall detection records, activity monitoring records and user localization. The call centre has been developed as a server accessible through web browser from any kind of terminal, after previous identification;
- ***Communication protocol:*** a communication protocol has been developed to manage the communication and synchronization between the mobile modules and the call centre. This communication protocol has been developed as independent software. The protocol is very important, since it is responsible of ensuring the good communication between the different elements, the integrity of the data, the data protection and includes the required safety acknowledgement.
- ***Testing and validation, Final users feedback:*** field trials have been carried out both to validate the prototype and get user feedbak on the device developed in Hebe. The trials took into consideration the different configurations of using the device: final users living autonomously at home as well as elderly living in specialized care centres. Controlled trials with elderly have also been organized to valid the funcitonning of the prototype, and to get statistical results.

Main documents available:

- Deliverable 1: “Technical Requirements and Product Specifications”
- Deliverable 2: “Ethical Issues”
- Deliverable 3: “Reference Signal Pattern Definition”
- Deliverable 4: http://hebe.fatronik.com

- Deliverable 5: “Mobile monitoring and automatic fall detection prototype”
- Deliverable 6: “Demonstration results and conclusions”
- Deliverable 7: “Annual report”, made by D7.1 “Periodic activity report 1” and by D7.2 “Periodic Management Report 1” from the first period of the project
- Deliverable 8: “Guidelines for product commercialisation”
- Deliverable 9: “Plan for using and disseminating the knowledge”
- Deliverable 10: “Final Report”, made D10.1 “Periodic activity report 2” and by D10.2 “Periodic Management Report 2” from the second period of the project
- Deliverable 11: “Public results report”
- Report on the Call Centre: no deliverable was planned on the call centre, but since it represents an important work, a deliverable has been written.

2 Summary of the project execution

The project execution has been carried out by phases, each one involving different partners and requiring specific capabilities. These main phases where:

2.1 Definition of the system: Human, Ethical and Technical Requirements

The project has been focused from the very beginning in giving an adapted service to elderly people, a category of user quite exigent and not so familiar to new technologies. Ease of use, adapted functions and interface, have been developed together with final user to ensure an adapted product and increase its possible commercial success. Furthermore, since the system deals with security and personal data of the user, ethical constraints are also very important and must be taken into account with care from the beginning of the project. By working close to final user, dedicating lot of efforts to user requirements, and to tests and validations with final user at different stages of the project, the project ensured the development of a system clearly adapted to its final users.

Both technical and ethical requirements have been taken into account. INGEMA and FATRONIK created discussion groups with elderly people to present them the project and collect their expectations and opinions towards such system. Final user opinions have been taken into account regarding the functions implemented to the system (utility, intrusiveness…), the ease of use and aspect of the system (how to wear it, ideal size, weight, shape, interface, how to use it… ICAVI BIKAIN and WANY ROBOTICS also participated in assessing the choices regarding the functions implemented and the service to offer.

Fig. 3: Multidisciplinary team for need requirements (final users, medical, nurses, engineers..)

Regarding the technical requirements, the RTD performers (FATRONIK, LIRMM and ZENON) worked on the definition of the technical requirements of the system. The main functions and technical issues the system must have to perform, to comply with its objective, have been defined. The general architecture of the system, the functions it must include, and the communication issues, the interface, the mode of functioning of the system have been defined, to ensure that the final product will perform well its objective, taking into account the ethical issues identified previously. The companies COMYMEDIA, NET TECHNOLOGIES and IKNOWHOW brought their specific knowledge in the different technologies in use in the system to help make adequate decision and take into account market realities. Finally the system has been fully defined on the technological point of view.

Results: **Complete definition of the system requirements, including technical and ethical issues, involving final user's opinions. See deliverables D1 and D2.**

2.2 Electronic biomechanical characterization

To be able to monitor user activity and to automatically detect a fall, it is necessary to find a way of characterizing on a systematic basis users activity. Automatic detection of activity has been performed by analyzing, through specific algorithms, the electronic pattern of the user's behaviour. The first step as so been to define electronically the behaviour of a person (gait, activities and fall) and to extract typical electronic patterns of these different activities on which the automatic detection methods have been developed.

To succeed in electronically characterizing human gait and daily activity is complicated, and several tests have been performed before finding the good way. Different sensors (and combination of sensors) have been tested as well as different places where to wear these sensors on user's body to obtain the best result. Accelerometers placed on the waist have finally been selected as the best method to representatively characterize the human activity.

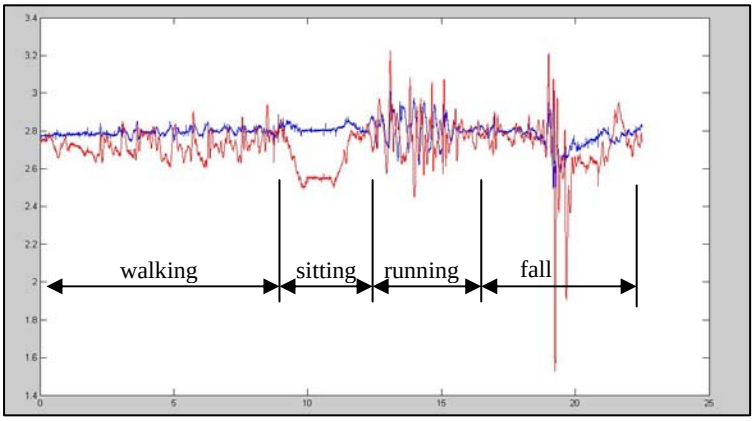

Fig. 4: Electronic biomechanical characterization

The second phase of this characterization have been to define patterns of the main activities and of a fall, patterns on which methods and algorithms would be developed to allow automatic detection. A campaign of tests has been realized and specific patterns for falls and main daily activities have been defined. These patterns had to be as little sensitive as possible to external parameters such as physical characteristics of the user, type of activity performed, temperature, etc… to ensure that the automatic detection would work in any case.

This work has been performed by WANY ROBOTICS and LIRMM regarding the activity monitoring, and by INGEMA and FATRONIK regarding the automatic fall detection (INGEMA participated in the realization of real tests). *(See Deliverable 3: Reference Signal Pattern Definition).*

Results: **Sensors selected to accurately monitor a person activity. Patterns defined to identify the Activities of Daily Living (ADL) and fall events. See deliverable D3**

2.3 Automatic Detection Methods

Once the patterns have been defined, specific methods and algorithms have been developed to perform automatic analysis and detection. The mobile modules includes a microcontroller on which these methods have been implemented, and is continuously real time analysing the movement of the user through the input from the accelerometers integrated to the system. The development of these methods has been realized in two phases:

- development of the methods on laptop for debugging, tests and validation: detection algorithm for automatic fall detection and method based on real networks for activity monitoring have been designed to perform automatic recognition of the patterns previously defined. Characteristic parameters of these patterns have been identified, and the methods have been developed based on these parameters. Automatic fall detection is basically an algorithm using amplitude and time parameters from the accelerometers signals, while activity monitoring method has been developed based on real network case recognition (due to the wide variety of activity types).
- Implementation of the methods on microcontroller: Finally, the algorithms have been developed under the microcontroller to be integrated in the program of the mobile module. Tests of validation have been realized to set the thresholds to ensure a good detection rate and to valid the algorithms.

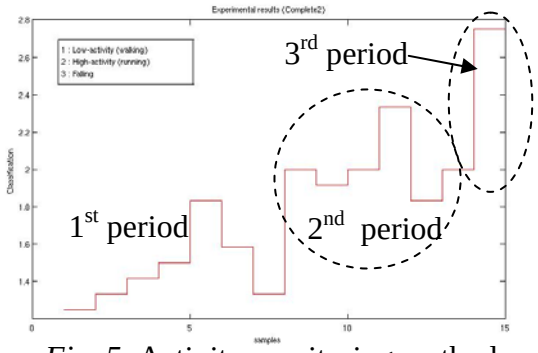

Fig. 5: Activity monitoring method

The neural network and activity monitoring have been developed mainly by LIRMM and WANY ROBOTICS, while the automatic fall detection have been essentially developed by FATRONIK. INGEMA participated in the performance of tests and validations.

Results: **algorithm and method for automatic fall detection and activity monitoring implemented in the microcontroller included in the mobile module. See deliverable D3.**

2.4 Mobile Module Design and Development

A very important effort has been required in the development of the mobile module. From the technical definition developed before, several steps have been carried out, such as the electronic design, the realization of prototypes version 1 and 2, the realization of tests and debugging.

The design of the prototypes starts by the design of the electronic circuit and the implantation of the components. The requirement of the system, apart from being reliable, had to be as small and light as possible. The integration of all the components, the routing, the design of the PCB required efforts and lot of work. Prototypes have been also developed at different stage to valid the technologies, the system and to test the programs and functions.

The main components of the mobile module are the accelerometer to monitor the kinematical activity of the user, the microcontroller running the programs, and the communication module with GSM/GPRS and GPS integrated to send the data to the call centre. Peripherals such as antennas, batteries, and a large number of small components are also necessary to ensure a good functioning of the system. The mobile module required special attention in its integration, and developing a compact system generated problems of interferences between the different components. The prototypes developed helped in detecting and solving these problems, before designing the definitive layout of the mobile module. They also have been used to test and develop the detection methods.
The definitive mobile module has been developed based on the same components (although some upgrades have been necessarily due to obsolete components versions), but with the definitive layouts and implantation according to the experience from the prototypes. The final system has been developed on a double layer PCB as a compact system, powered by rechargeable batteries. It includes all the basic functions defined (automatic fall detection, activity monitoring, and user localisation) and also additional ones, such as bidirectional communication with the call centre, panic button on the external interface, etc…
Most of Hebe partners have been participating in the development of the final prototype, at different levels. Lirmm has dedicated lot of time to the electronic design, together with the support from Fatronik. Wany Robotics brought its knowledge in integration, and participated in the fabrication of the prototypes. The manufacturing of the PCB card has been subcontracted, since none of the partners had the required equipment for its fabrication.
Results: **a full working pre-industrial prototype available to perform tests and validations and prepare its industrialization. This prototype has been developed under industrial conditions, regarding to components, design and manufacturing process, to prepare the industrialisation phase. See Deliverable D5.**

Fig. 6: Hebe industrial prototype

2.5 Programming and call centre development

The second main part in the development of Hebe device has been the design and development of the call centre, as well as the management of the communication between the mobile module and the call centre. The programming of the different elements required important dedication too.

The call centre is the second element of Hebe device and service: it is the application where all the data collected fro the different mobile devices in service is collected and saved, and it is the main interface to the medical staff to monitor the user of the service. The call centre includes the database and its interface on one part, and the software to manage communication with mobile devices on the other part.

The database of the call centre has been developed to save all the data that is received from the call centre (mostly alarm calls, as well as daily activity monitoring reports), and saves it in a way to ensure data protection. But the main added value of the call centre is its interface and the services it offers. For instance, the call centre has been developed to be accessible from any web browser connected to internet, which means that the content of the call centre and the services it offers are accessible from anywhere in the world and very easily, without the need of specific programs.

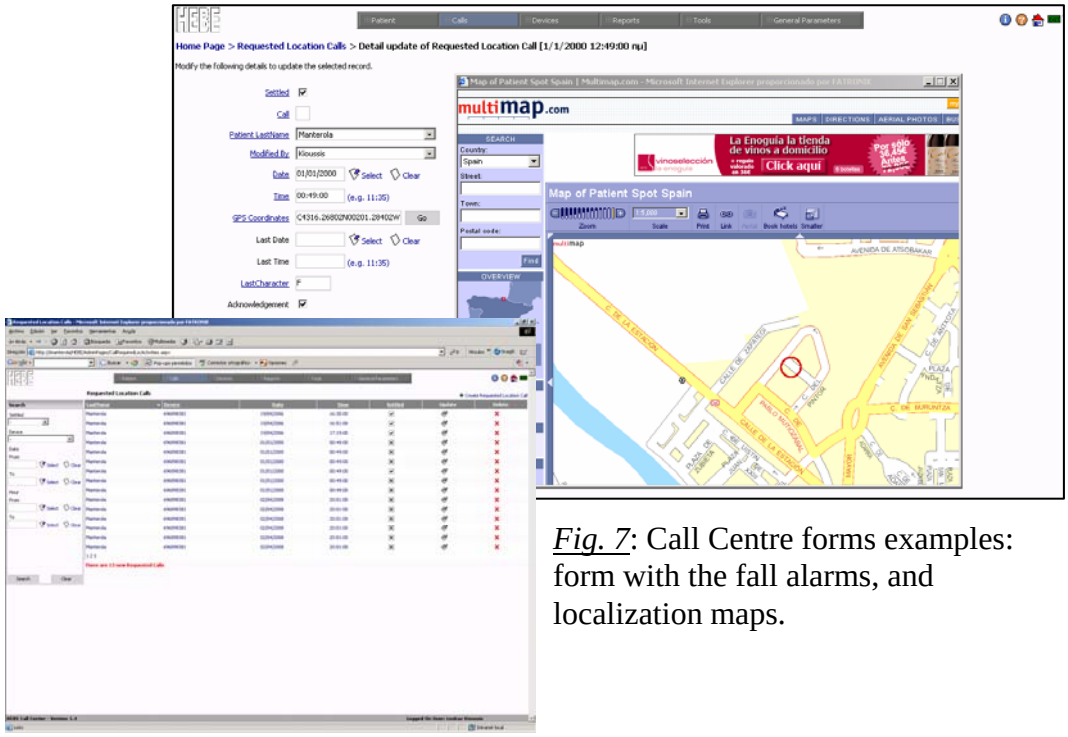

Fig. 7: Call Centre forms examples: form with the fall alarms, and localization maps.

The interface includes basic functions for the call centre management, such as forms to configure the different parameters, or to load data on the database, such as information on the users using the service, on the mobile module in service, etc… Nevertheless, it also offers advanced functions to help better use and exploit the data included in the system. These functions have been specifically designed to this application, and defined together with the help from future users, i.e. call centre operators, doctors and medical staff. These functions, available through the general interface of the call centre, and so accessible from anywhere in the world, have been designed to be intuitive in their use, and to really help people with no experience in call centre or informatics exploiting the information of the call centre. The most important functions implemented are, for instance, the visualization on a map of the user localization (much more understandable than GPS coordinates), the historic functions to get historic on the different element

monitored by the system (such as fall history of a given patient, etc…), the report function to help user extracting given information on a patient or an activity, monitoring activity function to visualize the activity of the patient on a given time period… The services implemented in the call centre have been developed on a modular basis, in order to adapt the content of the application depending on the need of each client. For instance, activity monitoring features can be deactivated if the activity monitoring service is not used, making a call centre lighter with only the required function implemented.

The software to manage communication between call centre and mobile module has been developed to be totally transparent to the user. This software runs continuously and automatically while the call centre is active. It manages the transfer of data between the different mobile modules and the call centre: transfer of activity monitoring data, alarms, calls fro the call centre to the mobile module (to get anticipated activity monitoring report, to get user localisation, etc…). Furthermore, this software includes all the acknowledgement and protections required to ensure that all data is well transmitted and protected. These issues are very important since dealing with user safety and personal data.

Results: **a fall working definitive call centre with the different functions and services implemented, highly flexible in service thanks to its web-delivered interface. Integration of the call centre with the mobile module thanks to the communication software. See additional documents "HEBE Call Centre Manual" and "HEBE Call Centre".**

2.6 Implementation, test and validation

Once the full system developed (call centre and communication software implemented, and mobile module industrial prototype developed), the phase of test and validation started. The system has been fully integrated, the communication between elements tested, and tests performed.

Fig. 8: Am elderly testing the system in its daily life

Regarding to the tests realized, several type of tests have been carried out. The first type have been realized with fall simulations in laboratory in order to perform debug (complex and time consuming in this kind of applications) and to adjust detection thresholds (acceleration detection, accelerometer output, components behaviour changes a little depending on their implementation and so adjustments had to be done once the system in its definitive configuration). Integration, communication and reliability have been tested. The second category of tests have been carried out thanks to final users, simulating daily activities and falls to test the system reliability. Other aspects of the system, such as its interface, ease of use and wear, services offered have been once again to the judgement of final users. Summarizing, the system and services offered still have very good acceptation by the users, but the fall detection rate of 50%

is not satisfactory. This low rate is mainly due to the difference between the simulation of the falls in laboratory and the simulation of the falls by elderly, as well as the impossibility to create real falls with elderly people (the tests are obviously performed with simulation of falls, on mattresses, and are not representative. Furthermore, the falls are mostly not realistic since people have fear to really fall). New setting of the thresholds has been realized and new tests with elderly are planned for September. In parallel, other type of tests have been realized in real conditions instead of simulations. The system has been tested in two scenarios: elderly living alone at home (and having lot of different activities), and elderly with lower level of autonomy, living full time in a care centre. During this period of test, no real fall occurred, but no false alarm have been detected neither, which is considered a good result. Those tests will be prolonged during several months, period during which there is a high probability of having real falls, and so having data on the fall detection reliability. The expected rate, in real conditions, is of about 90 to 95% detection. Indeed, this rate of detection is the one obtained by simulations in laboratory, and we believe these simulations are more realistic falls than the one performed by elderly: young people, simulating falls, has logically less fear than elderly, and so are more convincing. Finally it is important to remind that if a fall is not detected, it is likely to be a smooth fall, and that the patient is still conscious and has no major damage, and so will be able, if necessary, to push the alarm button to ask for help.
The large period of tests mentioned is planned within the industrialisation phases of the system.
Results: **validation of the whole system, feedback from the users on its different aspects (use, ergonomic, services offered, price…) and first evaluation of the reliability of the system. See Deliverables D6 and D10.**

2.7 Results, Dissemination and Exploitation

The main result of the project is the development of a full pre-industrial system for automatic activity monitoring of elderly people. Several advanced functions have been developed to help elderly and declared by themselves and their carers as of great interest and advantage:

- automatic fall detection, without the need of pushing any button, both for indoor and outdoor use,
- automatic activity monitoring, classifying the patient activity in levels to help medical follow up of the patient, both for indoor and outdoor use;
- GPS localisation of the patient for outdoor use, with transcription of the GPS coordinates to a real map;
- Bidirectional voice communication between the call centre and the patient to better assess the need in assistance of the patient when a call is emitted;
- Possibility to require from the call centre an anticipated activity monitoring report when necessary, as well as user localization;
- “Panic button” on the interface, for the user to be able to cancel an alarm when automatically generated (due to false alarm or due to a fall without consequences for instance) or to generate an alarm when required (malaise, thief in the house…);
- Advanced functions on the Call Centre for carers and doctors, accessible through internet from anywhere in the world, with all the information available and classified, as well as advanced research and information analysis functions.

The system consists of a) a mobile module the patient wears thanks to a belt at the waist, powered by rechargeable battery, and designed as small and light as possible, and b) a call centre for doctors with the necessary services for an easy follow-up of the patient and the fall alarms.
The work performed, results obtained and objectives of the project have been disseminated throughout the project to three main targets:

- scientific community, regarding to the scientific developments and results of the project,
- elderly, as final users of the system,
- service providers, such as care centre, health insurances, public health services, as buyers of the service.

This dissemination has taken part at different stages, depending on the collaboration needs at each stage. At the very beginning of the project to look for collaborators and already developed work that could be re-used in the project, during the project to present partial results (mainly to the scientific community) and at the end of the project (and in the future) to present final results. Different types of dissemination supports have been used, to reach a maximum of public, depending on the target (general communication, specific oriented communication, etc..) such as: press, TV, specialised press, congresses and conferences, meetings…

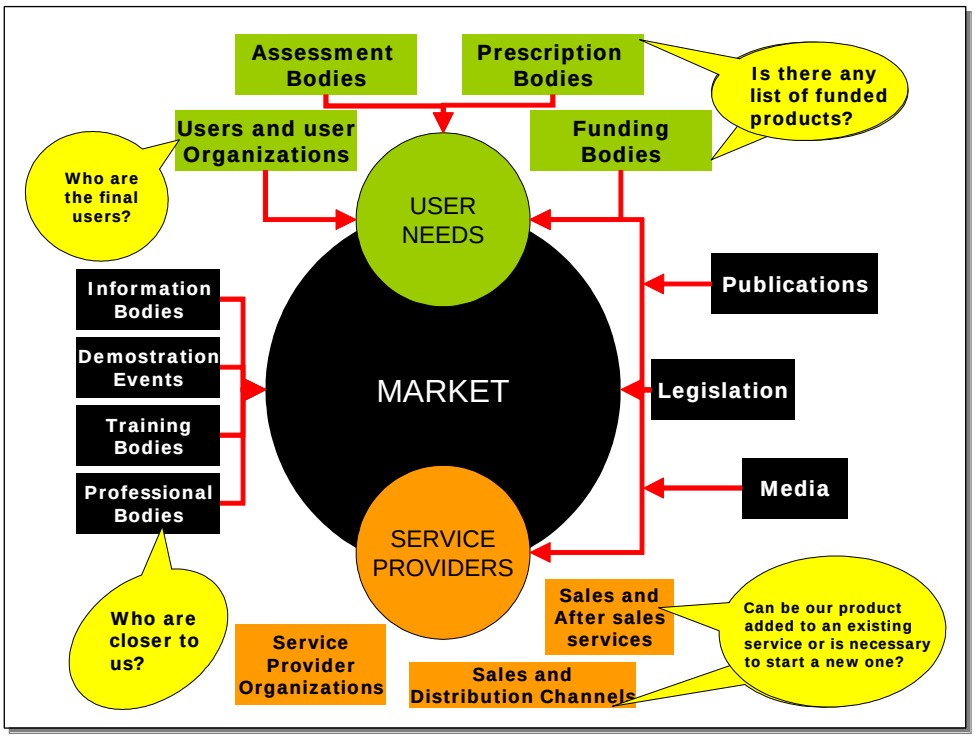

Fig. 9: Dissemination – Exploitation parameters

Regarding to exploitation, several activities have been undertaken, and most of the effort is going to be realised in the industrialisation phase of the project defined during Hebe project. Basically, Hebe partner have defined the different actions and work repartition as well as the planning for the two following main tasks:

- Industrialisation of the product: there is still work to realize to industrialise the product, including mainly a large phase of tests to completely test the system and get reliable statistics on its performance, and an industrialisation of the product in pre-series;
- Market strategy in the different countries, model of exploitation, objective clients, collaborations and opportunities in each market.

The industrialisation phase will be developed in a phase posterior to Hebe project, during between 8 to 12 months, from September 2006.
Results: **Fully working pre-industrial system; Dissemination of the results to the different targets, for marketing, commercial, actual and future developments and improvements of this products or others; Exploitation plan of Hebe, with industrialisation phase and strategy of exploitation in each market.**

3 Management and Resources

3.1 Management

Hebe consortium, shortly presented in paragraph 1.2, has been working on a coordinated way to develop Hebe project. From the beginning, the emphasis has been to look for coherence in the consortium and the work to develop, exploiting well each partner's capacity and expertise in each domain. Basically, the organisation of the project has been divided in the following main groups:

- **Definition of needs and of the system, exploitation and dissemination**: all partners have been participating in these tasks at the beginning and the end of the project mainly, each one bringing its specific knowledge;
- **Relation to final users, market requirements, medical needs and contacts** have been leadered by the companies close to this market, such as for instance Ingema and Icavi Bikain (inputs from the market, tests and validation in real conditions…)
- **Technological development – Hardware:** specific capacity are required for hardware development, both in its design and implementation, and specialised partners have participated in it. Lirmm and Wany Robotics for instance have played a major role in these phases;
- **Technological Development – Software:** the other face of Hebe development, requiring also many resources, has been the software development. It includes database or pure software as well as communication integration capabilities. Zenon, Net Technologies or Con&Media are exemple of partners specialised in this area.

Apart from its participation in technological developments, Fatronik, has leader of the project, has been in charge to ensure the good development of the project, to maintain the coherence between the consortium, the objectives, the budget and the timing to develop the project and help partners working together. An important task of the leader is also to inform the commission on the project's advancement, mainly through specific events (contract negotiation, Reporting 1 and 2, project finalisation) as well as through punctual activities.

3.2 Resources employment

In general terms, the project has been developed following the initial plan regarding to the main tasks to develop and the initial timing of this development. No major deviation has succeeded, requiring in depth modification of the project initial planning in its objectives, budget or timing. However, minor reorientation have been necessary, both on behalf of the consortium itself to better develop the project, or under assessment of the Commission to improve the functioning of the consortium and the results of the project.
In resource employment, two facts are worth to be specifically specified:

- Important resources have been dedicated at the beginning of the project to **user requirement and needs, as well as to characterize correctly electronic behaviour of a person** in its daily activity. Indeed, the consortium considered that it was important to dedicate big efforts in these two tasks to ensure the future success of the product developed: clearly meeting requirements, needs and expectation of the market (both final users as well as service providers) and ensure good electronic characterisation to help improve e detection reliability of the system.
- Resources re-assignment has been necessary in the **development of the prototype**. Indeed, due to integration components difficulties, debugging difficulties and technical complications in general, the development of the industrial prototype required more dedication than initially planned. In order not to change the global budget of the project, but without affecting to Hebe results, the consortium decided to re-assign dedication of some partners to other tasks to the development of the prototype. Indeed, the industrial prototype is the main result of the project and is a key element for the next exploitation of the project, so additional effort has been dedicated to it from some partners. To balance the budget, cost has been reduced in the realization of the tests and validation with final users, using lower cost personal (indeed, once the system operational, to carry out the tests do not require specific formation) and taking into account that a large phase of tests is planned in the industrialisation plan of Hebe.

Finally, the **resource employment** per period and total of the project is summarized in the following tables:

3.3 Person Month Status Table Period 1

Person-Month Status Table

CONTRACT N°:	COOP-CT-2004-005035		Partner - Person-month per Workpackage									
ACRONYM:	HEBE											
PERIOD:	1											
			TOTALS	FATRONIK	INGEMA	NETTECHN	ICAVI BIKAIN	IKNOWHOW	WANY	COM Y MEDIA	CNRS-DR13	ZENON
Workpackage 1:	Technical requirements and human related issues	Actual WP total:	15,0	1,0	5,0		6,0			1,0	2,0	
		Planned WP total:	15,0	1,0	5,0		6,0			1,0	2,0	
Workpackage 2:	Electronic Biomechanical characterization	Actual WP total:	19,5	7,0	2,5				8,0		2,0	
		Planned WP total:	19,5	7,0	2,5				8,0		2,0	
Workpackage 3:	Programming and evaluation method	Actual WP total:	11,0					2,0	5,0		4,0	
		Planned WP total:	23,0	3,0				4,0	6,0		10,0	
Workpackage 4:	Communication and networking	Actual WP total:	9,9			3,0		1,0		1,3		4,6
		Planned WP total:	20,0			6,0		2,0		3,0		9,0
Workpackage 5:	Design and integration	Actual WP total:	3,0			3,0						
		Planned WP total:	18,0	4,0		4,0				6,0	2,0	2,0
Workpackage 6:	Testing and demonstration activities	Actual WP total:	-									
		Planned WP total:	23,0	1,0	6,0	4,5	5,0			4,0		2,5
Workpackage 7:	Dissemination and commercialisation guidelines	Actual WP total:	-									
		Planned WP total:	16,0		3,0	2,0	9,5			1,5		
Workpackage 8:	Project Management	Actual WP total:	2,2	2,0			0,2					
		Planned WP total:	5,5	3,0	0,5	0,5	0,5			0,5		0,5
		Actual total:	58,6	10,0	7,5	6,0	6,2	3,0	11,0	2,3	8,0	4,6
Total Project Person-month		Planned total:	140,0	19,0	17,0	17,0	21,0	6,0	14,0	16,0	16,0	14,0

3.4 Person Month Status Table Period 2

CONTRACT	COOP-CT-2004-005035		Partner - Person-month per Workpackage									
ACRONYM:	HEBE											
PERIOD:	2											
			TOTALS	FATRONIK	INGEMA	NETTECHN	ICAVI BIKAIN	IKNOWHOW	WANY	COM Y MEDIA	CNRS-DR13	ZENON
Workpackage 1:	Technical requirements and human related issues	**Actual WP total:**	-	-	-		-			-	-	
		Planned WP total:	**15,0**	1,0	5,0		6,0			1,0	2,0	
Workpackage 2:	Electronic Biomechanical characterization	**Actual WP total:**	-	-	-				-		-	
		Planned WP total:	**19,5**	7,0	2,5				8,0		2,0	
Workpackage 3:	Programming and evaluation method	**Actual WP total:**	**14,0**	3,0				2,0	3,0		6,0	
		Planned WP total:	**23,0**	3,0				4,0	6,0		10,0	
Workpackage 4:	Communication and networking	**Actual WP total:**	**10,1**			3,0		1,0		1,7		4,4
		Planned WP total:	**20,0**			6,0		2,0		3,0		9,0
Workpackage 5:	Design and integration	**Actual WP total:**	**26,1**	4,0		5,5				10,0	2,0	4,6
		Planned WP total:	**18,0**	4,0		4,0				6,0	2,0	2,0
Workpackage 6:	Testing and demonstration activities	**Actual WP total:**	**16,3**	1,0	11,0	-	4,3			-		-
		Planned WP total:	**23,0**	1,0	6,0	4,5	5,0			4,0		2,5
Workpackage 7:	Dissemination and commercialisation guidelines	**Actual WP total:**	**15,0**		3,0	2,0	8,5			1,5		
		Planned WP total:	**16,0**		3,0	2,0	9,5			1,5		
Workpackage 8:	Project Management	**Actual WP total:**	**3,3**	1,0	0,5	0,5	0,3			0,5		0,5
		Planned WP total:	**5,5**	3,0	0,5	0,5	0,5			0,5		0,5
		Actual total:	**84,8**	**9,0**	**14,5**	**11,0**	**13,1**	**3,0**	**3,0**	**13,7**	**8,0**	**9,5**
Total Project Person-month		**Planned total:**	**140,0**	**19,0**	**17,0**	**17,0**	**21,0**	**6,0**	**14,0**	**16,0**	**16,0**	**14,0**

3.5 Person Month Status Table: Total of the Project

Person-Month Status Table

CONTRACT	COOP-CT-2004-005035		Partner - Person-month per Workpackage									
ACRONYM:	HEBE											
PERIOD:	TOTAL											
			TOTALS	FATRONIK	INGEMA	NETTECHN	ICAVI BIKAIN	IKNOWHOW	WANY	COM Y MEDIA	CNRS-DR13	ZENON
Workpackage 1:	Technical requirements and human related issue	Actual WP total:	15,0	1,0	5,0		6,0			1,0	2,0	
		Planned WP total:	15,0	1,0	5,0		6,0			1,0	2,0	
Workpackage 2:	Electronic Biomechanical characterization	Actual WP total:	19,5	7,0	2,5				8,0		2,0	
		Planned WP total:	19,5	7,0	2,5				8,0		2,0	
Workpackage 3:	Programming and evaluation method	Actual WP total:	23,0	3,0				4,0	6,0		10,0	
		Planned WP total:	23,0	3,0				4,0	6,0		10,0	
Workpackage 4:	Communication and networking	Actual WP total:	20,0			6,0		2,0		3,0		9,0
		Planned WP total:	20,0			6,0		2,0		3,0		9,0
Workpackage 5:	Design and integration	Actual WP total:	29,1	4,0		8,5				10,0	2,0	4,6
		Planned WP total:	18,0	4,0		4,0				6,0	2,0	2,0
Workpackage 6:	Testing and demonstration activities	Actual WP total:	16,3	1,0	11,0	-	4,3			-		-
		Planned WP total:	23,0	1,0	6,0	4,5	5,0			4,0		2,5
Workpackage 7:	Dissemination and commercialisation guidelines	Actual WP total:	15,0		3,0	2,0	8,5			1,5		
		Planned WP total:	16,0		3,0	2,0	9,5			1,5		
Workpackage 8	Project Management	Actual WP total:	5,5	3,0	0,5	0,5	0,5			0,5		0,5
		Planned WP total:	5,5	3,0	0,5	0,5	0,5			0,5		0,5
		Actual total:	143,4	19,0	22,0	17,0	19,3	6,0	14,0	16,0	16,0	14,1
Total Project Person-month		Planned total:	140,0	19,0	17,0	17,0	21,0	6,0	14,0	16,0	16,0	14,0

3.6 Summary Financial Report Period 1

Summary Financial Report

Type of Instrument	CRAFT	Project Title (or Acronym)	HEBE	Contract N°	COOP-CT-2004-005935
Reporting period number	1	From (dd/mm/yyyy)	01-sep	To (dd/mm/yyyy)	31-jul	Page	1/1

Contractor n°	Organisation Short Name	Cost model used	Eligible costs (in €)	Type of activities: Research and Technological Development / Innovation (A) – Contractor	(A) – AC Third party(ies)	(A) – FC/FCF Third party(ies)	Management of the consortium (D) – Contractor	(D) – AC Third party(ies)	(D) – FC/FCF Third party(ies)	Total eligible costs (F)=(A)+(B)+(C)+(D)+(E) – Contractor	– AC Third party(ies)	– FC/FCF Third party(ies)	Receipts – Contractor	– AC Third party(ies)	– FC/FCF Third party(ies)
1	FATRONIK	FC	Direct eligible costs	46155,07			5979,94			52.135,01	0,00	0,00			
			of which direct eligible costs of							*0,00*	*0,00*	*0,00*			
			Indirect eligible costs	55636,46			8150,68			63.787,14	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	*101.791,53*	*0,00*	*0,00*	*14.130,62*	*0,00*	*0,00*	115.922,15	0,00	0,00			
2	IIGEMA	FC	Direct eligible costs	48545,5						48.545,50	0,00	0,00			
			of which direct eligible costs of							*0,00*	*0,00*	*0,00*			
			Indirect eligible costs	21503,3						21.503,30	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	70048,8	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	70.048,80	0,00	0,00			
3	NETTECHNI	FC	Direct eligible costs	33.065,00						33.065,00	0,00	0,00			
			of which direct eligible costs of	0,00						*0,00*	*0,00*	*0,00*			
			Indirect eligible costs	13.226,00						13.226,00	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	*46.291,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	46.291,00	0,00	0,00			
4	ICAVI BIKAIN	FCF	Direct eligible costs	21000			1000			22.000,00	0,00	0,00			
			of which direct eligible costs of				0			*0,00*	*0,00*	*0,00*			
			Indirect eligible costs	4200			200			4.400,00	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	*25.200,00*	*0,00*	*0,00*	*1.200,00*	*0,00*	*0,00*	26.400,00	0,00	0,00			
5	IKNOWHOW	FC	Direct eligible costs	12837,25						12.837,25	0,00	0,00			
			of which direct eligible costs of							*0,00*	*0,00*	*0,00*			
			Indirect eligible costs	7845,69						7.845,69	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	*20.682,94*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	20.682,94	0,00	0,00			
6	WAHY Robotics	FCF	Direct eligible costs	55077						55.077,00	0,00	0,00			
			of which direct eligible costs of	0						*0,00*	*0,00*	*0,00*			
			Indirect eligible costs	11015						11.015,00	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	*66.092,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	66.092,00	0,00	0,00			
7	COMYMEDIA	FCF	Direct eligible costs	11.666,00			4.083,00			15.749,00	0,00	0,00			
			of which direct eligible costs of	-			-			*0,00*	*0,00*	*0,00*			
			Indirect eligible costs	2.334,00			817,00			3.151,00	0,00	0,00			
			Adjustment on previous period(s)	-			-			0,00	0,00	0,00			
			Total eligible costs	*14.000,00*	*0,00*	*0,00*	*4.900,00*	*0,00*	*0,00*	18.900,00	0,00	0,00			
8	CNRS-DR13	FCF	Direct eligible costs	56.414,66						56.414,66	0,00	0,00			
			of which direct eligible costs of							*0,00*	*0,00*	*0,00*			
			Indirect eligible costs	11.282,93						11.282,93	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	*67.697,59*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	67.697,59	0,00	0,00			
9	ZEHON	FC	Direct eligible costs	24.934,99						24.934,99	0,00	0,00			
			of which direct eligible costs of	0,00						*0,00*	*0,00*	*0,00*			
			Indirect eligible costs	25.594,67						25.594,67	0,00	0,00			
			Adjustment on previous period(s)	0,00						0,00	0,00	0,00			
			Total eligible costs	*50.529,66*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	50.529,66	0,00	0,00			
Total eligible costs				462.333,52	0,00	0,00	20.230,62	0,00	0,00	482.564,14	0,00	0,00	0,00	0,00	0,00
						462.333,52			20.230,62			482.564,14			0,00
Requested EC contribution for the reporting period (in €) without taking into account receipts				231.166,76	0,00	0,00	20.230,62	0,00	0,00			251.397,38			
						231.166,76			20.230,62						
Requested EC contribution for the reporting period (in €) taking into account receipts [=Periodic Invoice]										251.397,38					
Amount of the financial interests generated by the prefinancing															

3.7 Summary Financial Report Period 2

Summary Financial Report

Type of Instrument	CRAFT	Project Title (or Acronym)	HEBE			Contract N°	COOP-CT-2004-005935	
Reporting period number	2	From (dd/mm/yyyy)	01/08/2005	To (dd/mm/yyyy)	30/04/2006		Page	1/1

Contractor n°	Organisation Short Name	Cost model used	Eligible costs (in €)	Type of activities: Research and Technological Development / Innovation (A)			Type of activities: Management of the consortium (D)			Total eligible costs (F)=(A)+(B)+(C)+(D)+(E)			Receipts		
				Contractor	AC Third party(ies)	FC/FCF Third party(ies)	Contractor	AC Third party(ies)	FC/FCF Third party(ies)	Contractor	AC Third party(ies)	FC/FCF Third party(ies)	Contractor	AC Third party(ies)	FC/FCF Third party(ies)
1	FATRONIK	FC	Direct eligible costs	35.636,70			6081,75			41.718,45	0,00	0,00			
			of which direct eligible costs of				800			800,00	0,00	0,00			
			Indirect eligible costs	42.021,00			9071,2			51.092,20	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	77.657,70	-	-	15.152,95	0,00	0,00	92.810,65	0,00	0,00			
2	IINGEMA	FC	Direct eligible costs	76.275,41			871,89			77.147,30	0,00	0,00			
			of which direct eligible costs of							0,00	0,00	0,00			
			Indirect eligible costs	16.523,23						16.523,23	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	92.798,64	-	-	871,89	0,00	0,00	93.670,53	0,00	0,00			
3	IIETTECHNI	FC	Direct eligible costs	61.696,00			2.000,00			63.696,00	0,00	0,00			
			of which direct eligible costs of							0,00	0,00	0,00			
			Indirect eligible costs	25.479,00						25.479,00	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	87.175,00	-	-	2.000,00	0,00	0,00	89.175,00	0,00	0,00			
4	ICAVI BIKAIN	FCF	Direct eligible costs	47.272,27			2003,42			49.275,69	0,00	0,00			
			of which direct eligible costs of							0,00	0,00	0,00			
			Indirect eligible costs	9.454,45			400,68			9.855,13	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	56.726,72	-	-	2.404,10	0,00	0,00	59.130,82	0,00	0,00			
5	IKNOWHOW	FC	Direct eligible costs	12.000,00			1.000,00			13.000,00	0,00	0,00			
			of which direct eligible costs of				1.000,00			1.000,00	0,00	0,00			
			Indirect eligible costs	9.932,00						9.932,00	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	21.932,00	-	-	1.000,00	0,00	0,00	22.932,00	0,00	0,00			
6	WAHY Robotics	FCF	Direct eligible costs	16.089,00						16.089,00	0,00	0,00			
			of which direct eligible costs of							0,00	0,00	0,00			
			Indirect eligible costs	3.218,00						3.218,00	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	19.307,00	-	-	0,00	0,00	0,00	19.307,00	0,00	0,00			
7	COMYMEDIA	FCF	Direct eligible costs	76.194,00			2.742,00			78.936,00	0,00	0,00			
			of which direct eligible costs of							0,00	0,00	0,00			
			Indirect eligible costs	15.239,00			548,00			15.787,00	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	91.433,00	-	-	3.290,00	0,00	0,00	94.723,00	0,00	0,00			
8	CNRS-DR13	FCF	Direct eligible costs	47.800,23			187,30			47.987,53	0,00	0,00			
			of which direct eligible costs of							0,00	0,00	0,00			
			Indirect eligible costs	9.560,06			37,46			9.597,52	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	57.360,35	-	-	224,76	0,00	0,00	57.585,11	0,00	0,00			
9	ZENON	FC	Direct eligible costs	39.963,64			1.500,00			41.463,64	0,00	0,00			
			of which direct eligible costs of				1.000,00			1.000,00	0,00	0,00			
			Indirect eligible costs	30.905,00			500,00			31.405,00	0,00	0,00			
			Adjustment on previous period(s)							0,00	0,00	0,00			
			Total eligible costs	70.868,64	-	-	2.000,00	0,00	0,00	72.868,64	0,00	0,00			
Total eligible costs				575.259,05	0,00	0,00	26.943,70	0,00	0,00	602.202,75	0,00	0,00	0,00	0,00	0,00
						575.259,05			26.943,70			602.202,75			0,00
Requested EC contribution for the reporting period (in €) without taking into account receipts				287.629,53	0,00	0,00	26.943,70	0,00	0,00			314.573,23			
						287.629,53			26.943,70						
Requested EC contribution for the reporting period (in €) taking into account receipts [=Periodic Invoice]												314.573,23			
Amount of the financial interests generated by the prefinancing															

3.8 Summary Financial Report: Total of the Project

Summary Financial Report

Type of Instrument	CRAFT	Project Title (or Acronym)	HEBE			Contract N°	COOP-CT-2004-005935				
Reporting period number	1&2	From (dd/mm/yyyy)	01/09/2004	To (dd/mm/yyyy)						Page	1/1

Contractor n°	Organisation Short Name	Cost model used	Eligible costs (in €)	Type of activities: Research and Technological Development / Innovation (A)			Type of activities: Management of the consortium (D)			Total eligible costs (F)=(A)+(B)+(C)+(D)+(E)			Receipts		
				Contractor	AC Third party(ies)	FC/FCF Third party(ies)	Contractor	AC Third party(ies)	FC/FCF Third party(ies)	Contractor	AC Third party(ies)	FC/FCF Third party(ies)	Contractor	AC Third party(ies)	FC/FCF Third party(ies)
1	FATRONIK	FC	Direct eligible costs	81.791,77	-	-	12061,69	0	0	93.853,46	0,00	0,00			
			of which direct eligible costs of	-	-	-	800	0	0	800,00	0,00	0,00			
			Indirect eligible costs	97.657,46	-	-	17221,88	0	0	114.879,34	0,00	0,00			
			Adjustment on previous period(s)	-	-	-	0	0	0	0,00	0,00	0,00			
			Total eligible costs	179.449,23	-	-	29.283,57	0,00	0,00	208.732,80	0,00	0,00			
2	IINGEMA	FC	Direct eligible costs	124.820,91	-	-	871,89	0	0	125.692,80	0,00	0,00			
			of which direct eligible costs of	-	-	-	0	0	0	0,00	0,00	0,00			
			Indirect eligible costs	38.026,53	-	-	0	0	0	38.026,53	0,00	0,00			
			Adjustment on previous period(s)	-	-	-	0	0	0	0,00	0,00	0,00			
			Total eligible costs	162.847,44	-	-	871,89	0,00	0,00	163.719,33	0,00	0,00			
3	IIETTECHNI	FC	Direct eligible costs	94.761,00	-	-	2000	0	0	96.761,00	0,00	0,00			
			of which direct eligible costs of	-	-	-	0	0	0	0,00	0,00	0,00			
			Indirect eligible costs	38.705,00	-	-	0	0	0	38.705,00	0,00	0,00			
			Adjustment on previous period(s)	-	-	-	0	0	0	0,00	0,00	0,00			
			Total eligible costs	133.466,00	-	-	2.000,00	0,00	0,00	135.466,00	0,00	0,00			
4	ICAVI BIKAIN	FCF	Direct eligible costs	68.272,27	-	-	3003,42	0	0	71.275,69	0,00	0,00			
			of which direct eligible costs of	-	-	-	0	0	0	0,00	0,00	0,00			
			Indirect eligible costs	13.654,45	-	-	600,68	0	0	14.255,13	0,00	0,00			
			Adjustment on previous period(s)	-	-	-	0	0	0	0,00	0,00	0,00			
			Total eligible costs	81.926,72	-	-	3.604,10	0,00	0,00	85.530,82	0,00	0,00			
5	IKNOWHOW	FC	Direct eligible costs	24.837,25	-	-	1000	0	0	25.837,25	0,00	0,00			
			of which direct eligible costs of	-	-	-	1000	0	0	1.000,00	0,00	0,00			
			Indirect eligible costs	17.777,69	-	-	0	0	0	17.777,69	0,00	0,00			
			Adjustment on previous period(s)	-	-	-	0	0	0	0,00	0,00	0,00			
			Total eligible costs	42.614,94	-	-	1.000,00	0,00	0,00	43.614,94	0,00	0,00			
6	WAHY Robotics	FCF	Direct eligible costs	71.166,00	-	-	0	0	0	71.166,00	0,00	0,00			
			of which direct eligible costs of	-	-	-	0	0	0	0,00	0,00	0,00			
			Indirect eligible costs	14.233,00	-	-	0	0	0	14.233,00	0,00	0,00			
			Adjustment on previous period(s)	-	-	-	0	0	0	0,00	0,00	0,00			
			Total eligible costs	85.399,00	-	-	0,00	0,00	0,00	85.399,00	0,00	0,00			
7	COMYMEDIA	FCF	Direct eligible costs	87.860,00	-	-	6825	0	0	94.685,00	0,00	0,00			
			of which direct eligible costs of	-	-	-	0	0	0	0,00	0,00	0,00			
			Indirect eligible costs	17.573,00	-	-	1365	0	0	18.938,00	0,00	0,00			
			Adjustment on previous period(s)	-	-	-	0	0	0	0,00	0,00	0,00			
			Total eligible costs	105.433,00	-	-	8.190,00	0,00	0,00	113.623,00	0,00	0,00			
8	CIRS-DR13	FCF	Direct eligible costs	104.214,95	-	-	187,3	0	0	104.402,25	0,00	0,00			
			of which direct eligible costs of	-	-	-	0	0	0	0,00	0,00	0,00			
			Indirect eligible costs	20.842,99	-	-	37,46	0	0	20.880,45	0,00	0,00			
			Adjustment on previous period(s)	-	-	-	0	0	0	0,00	0,00	0,00			
			Total eligible costs	125.057,94	-	-	224,76	0,00	0,00	125.282,70	0,00	0,00			
9	ZEHON	FC	Direct eligible costs	64.898,63	-	-	1500	0	0	66.398,63	0,00	0,00			
			of which direct eligible costs of	-	-	-	1000	0	0	1.000,00	0,00	0,00			
			Indirect eligible costs	56.499,67	-	-	500	0	0	56.999,67	0,00	0,00			
			Adjustment on previous period(s)	-	-	-	0	0	0	0,00	0,00	0,00			
			Total eligible costs	121.398,30	-	-	2.000,00	0,00	0,00	123.398,30	0,00	0,00			
Total eligible costs				1.037.592,57	0,00	0,00	47.174,32	0,00	0,00	1.084.766,89	0,00	0,00	0,00	0,00	0,00
						1.037.592,57			47.174,32			1.084.766,89			0,00
Requested EC contribution for the reporting period (in €) without taking into account receipts				518.796,29	0,00	0,00	47.174,32	0,00	0,00			565.970,61			
						518.796,29			47.174,32						
Requested EC contribution for the reporting period (in €) taking into account receipts [=Periodic Invoice]												565.970,61			
Amount of the financial interests generated by the prefinancing															