



Continua[®]
HEALTH ALLIANCE

Connecting people and
technology for healthier living



Continua Use Cases 2006



Continua®
HEALTH ALLIANCE

Continua Use Cases

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Document Control

Version	Date	Author	Change Description
1	September 16, 2013	Continua Administration	Initial draft
2	September 3, 2014	Continua Administration	Approved by UCWG for external release without amendment

Introduction

This document presents an example of a Continua Use Case for external publication. It is based on use cases approved for development by member ballot in 2006.

Continua's Interoperability Guidelines are developed to meet interoperability use cases which have been developed by the membership and approved at ballot. The procedures for the development and support of use cases are set out in the [Continua Use Case Lifecycle Process](#) (Section 4.3). Once approved at ballot, a use case would normally remain open to development of new Interoperability Guidelines for a period of 4 years, after which it becomes 'closed' unless there is a case put forward for an extension.

Once approved for development, a use case may be divided into one or more 'work items' which are the discrete increments of capability that are incorporated into the Interoperability Guidelines. In more complex cases, this means some Work Items may be completed and published as Guidelines while others remain in development.

This document provides details of all use cases that have been worked on by Continua and includes:

- **Closed, Not Approved** - Proposals for use cases that have been presented for ballot but not approved.
- **Open, In Development** - Use cases that have been approved and work to develop the supporting Interoperability Guidelines is underway. This includes Use Cases that have become time-expired but still have one or more Work Items already in development that have not yet time expired.
- **Open, Partially Complete** - Use cases for which some elements have been addressed in published Interoperability Guidelines while further aspects remain in development. This also includes Use Cases that have become time-expired but still have one or more Work Items already in development that have not yet time expired.
- **Open, In Service** - Use cases for which the Interoperability Guidelines have been published and are in use and no further development can be undertake. This includes use cases that may have been partially completed and then become time-expired for the remaining aspects of the requirements.
- **Closed, Time Expired** - Use cases that have been approved at ballot but are now closed as work to complete the interoperability Guidelines was not completed before the use case became time expired.

The use cases in this document are presented in date order and listed by the unique project identifier allocated by Continua for tracking the development.

As the nature and format for the use cases has evolved over the years the following notes will help in understanding the use cases presented in this document:

- These are interoperability use cases, and specify the requirements for interworking of different components. As such, they differ from typical end product use cases in that only essential details of the mode of use are provided. For example, the blood pressure monitoring device will specify the data to be transferred, and some aspects of usability, but does not further elaborate on the actual use case for blood pressure monitoring.

- The first round of development in 2006 started with a blank sheet of paper and the process was different from subsequent years. Proposals were developed into a series of 'archetypal use cases' which were ranked at ballot into relative priorities. The ballot for this round provided a priority ranking of the archetypal use cases and in some cases, development work further refined the requirements (e.g. specifying the initial range of device types that would be included in the first edition of the Design Guidelines)
- From 2007 onwards, use cases work from the established Continua end to end architecture and specify the additional interoperability requirements being requested.
- In 2012, Continua moved from an annual cycle for collecting new ideas to one that provided three opportunities each year.
- Some use cases are further supported by Feasibility Assessments. These are reviews provided by the various work groups to assist in the evaluation of the use case for the member ballot.

Use case status summary

Call	UCWG Project ID	Title	External Reporting Status	TWG Project or E2E Architecture Description
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2006 V1	A001	Track Fitness Information	Open, In Service	Cardio and Strength fitness devices
2006 V1	A002	Configure Fitness Equipment	Closed, Time Expired	
2006 V1	A003	Exercise Gaming	Closed, Time Expired	
2006 V1	A004	Track Fitness Information for Multiple Users	Closed, Time Expired	HRN Interface
2006 V1	A005	Display and Record Streaming Fitness Sensor Data	Closed, Time Expired	
2006 V1	A006	Receive Fitness Reminders	Closed, Time Expired	
2006 V1	A007	Episodic Remote Patient Monitoring	Open, In Service	HRN Interface
2006 V1	A008	Continuous & Acute Remote Patient Monitoring	Closed, Time Expired	
2006 V1	A009	Asynchronous Patient - Medical Provider Interaction	Open, In Service	
2006 V1	A010	Synchronous Patient - Medical Provider Interaction	Closed, Time Expired	
2006 V1	A011	Share Health Data of Multiple Patients for Medical Research	Closed, Time Expired	
2006 V1	A012	Track_Elder_Information	Open, In Service	Independendnt Living Activity device intermediary HRN Interface
2006 V1	A013	Receive Reminders for Important Activities	Closed, Time Expired	
2006 V1	A014	Monitor Activities of Daily Living	Open, In Service	Independent Living Activity device intermediary and supported ancilliary device specialisations
2006 V1	A015	Monitor Safety	Closed, Time Expired	
2006 V1	A016	Automate Household Activities	Closed, Time Expired	
2006 V1	A017	Respond to Emergency	Closed, Time Expired	
2006 V1	A018	Consult with Caregiver	Closed, Time Expired	
2007 V2	Pro01a	Simple EMR-EHR-PHR data import-export	Open, In Service	
2007 V2	Pro01b	Two-Way Communications on xHR Interface	Closed, Not Approved	
2007 V2	Pro01c	Clinical coding for xHR data exchange	Open, In Service	IEEE 11073 to SNOMED terminology concept mappings
2007 V2	Pro01d	Context sharing and patient dashboard	Closed, Not Approved	
2007 V2	Pro01e	Transfer visit summary to PHR	Closed, Not Approved	
2007 V2	Pro01f	Two-Way Communications Between Two xHR Systems	Closed, Not Approved	
2007 V2	Pro02	Advanced medication monitor	Open, In Service	Advanced medication monitor
2007 V2	Pro03	ECG & Respiration device	Open, Partially Complete	3-lead ECG device specialisation.
2007 V2	Pro04	Cross system alert management (previously Collective monitoring)	Closed, Time Expired	
2007 V2	Pro06	Activity Monitoring	Open, In Development	
2007 V2	Pro07	Real-time Transmission for HF	Closed, Time Expired	
2007 V2	Pro09a	Care and health information	Closed, Time Expired	
2007 V2	Pro09b	Social interaction	Closed, Not Approved	
2007 V2	Pro10	Information sharing and E2E security	Open, In Development	E2E Security SIG
2007 V2	Pro11	Data reliability and authenticity	Open, In Development	E2E Security SIG
2007 V2	Pro12	Data upload on the WAN	Open, In Development	E2E Security SIG - Measurement Device Gateway.
2007 V2	Pro13a	Low power LAN	Open, Partially Complete	Low power LAN (Zigbee)
2007 V2	Pro13b	Ultra-low power sensors on or near the body	Open, Partially Complete	Ultra low power BAN (BTLE)
2007 V2	Pro16	Integration as a service	Closed, Not Approved	
2007 V2	Pro19	Multiple new biometric devices	Closed, Time Expired	
2007 V2	Pro20	Complete Medication Tracking	Closed, Time Expired	
2007 V2	Pro21	Fluid Monitor Device	Closed, Time Expired	
2007 V2	Pro22	Peak Flow Device	Open, In Service	Peak Flow Device
2007 V2	Pro23	PT INR Device	Open, In Service	PT INR Device
2007 V2	Pro24	Insulin Pump Monitoring	Open, In Development	
2007 V2	Pro25	Track Disease Management Information for Multiple Users	Closed, Time Expired	
2007 V2	Pro27	IPLAN interface	Closed, Time Expired	
2007 V2	Pro30	Transport Home to Hospital	Closed, Not Approved	
2007 V2	Pro31	Remote Device Management	Closed, Time Expired	
2009 V2	09 01	Telecare over IP WAN	Open, In Development	
2010	Pro10-04	Patient Reported Outcome Measures input device	Open, In Development	
2010	Pro10-05 A	Extension to PHMR	Open, In Development	
2010	Pro10-05 B	HRN Interface Implementation Requirements	Open, In Development	
2010	Pro10-06	Clinicians Response Message	Open, In Development	
2010	Pro10-07	PHMR Extension for Legacy Devices	Open, In Development	
2010	Pro10-08	Tap and Go device interface	Open, In Development	
2010	Pro10-10	Application portability across mobile platforms	Closed, Not Approved	
2010	Pro10-15	Use of modeling languages within Smart Homes	Closed, Not Approved	
2010	Pro10-16	AHD to CE (Consumer Electronic Device) Communication	Open, In Development	
2010	Pro10-17	Wearable Mobile Nurse Call	Closed, Not Approved	
2011	Pro11-01	Text based questionnaires	Open, In Development	
2011	Pro11-02	Sleep Measuring Device	Open, In Development	
2011	Pro11-03	Sleep Apnoea Measuring Device	Open, In Development	
2011	Pro11-04	Body composition analyzer	Open, In Service	
2011	Pro11-05	Remote Device Configuration	Open, In Development	
2011	Pro11-06	Legacy Data	Open, In Development	
2011	Pro11-07	Embedded Area Network	Open, In Development	
2011	Pro11-08	Mobile store and forward	Open, In Development	
2011	Pro11-09	Mobile Web Health API	Open, In Development	
2011	Pro11-10	Consumer Security Model	Open, In Development	
2011	Pro11-13	Location Services	Open, In Development	
2011	Pro11-14	Device calibration for alternative glucose meter	Open, In Development	
2012	Pro12-01	Sleep apnoea breathing therapy equipment	Open, In Development	
2012	Pro12-03	CGM (Continuous Glucose Monitoring)	Open, In Development	
2012	Pro12-04	Waveform	Open, In Development	
2012	Pro12-05	Streaming Video	Open, In Development	

Use Cases:

1. A001 Track Fitness Information

Document Control

Version	Date	Ballot Date	Status
1.0	August 22, 2006		Approved Open – In Service

Project Description

Use Case Title:	A001_Track Fitness Information
Modified Date:	
Version:	1.0
Description:	The cornerstone of a fitness ecosystem is the ability for users to collect and share their health and fitness information, in a seamless fashion, across a variety of environments. Being able to track and share the information increases motivation through external encouragement and accountability from friends and trainers as well as the ability to track actual work and progress over time.
Scope:	Mobile and stationary fitness devices, compute engines and services.
Primary Actor:	Joe who is training for a duathlon (run and bike)
Supporting Actors:	Joe's Coach
Precondition:	Joe has an exercise bike, a running computer (measures speed, distance and heart rate, among other measures), a PC and a subscription to a fitness data and analysis service.
Steps or Basic Flow:	<ol style="list-style-type: none">1. Joe puts on his running computer and goes for a run in his neighborhood.2. When done with his run, he commences a ride on the exercise bike.3. When done with the ride, the details of both the run and the ride are uploaded to his PC4. The PC registers the information with Joe's fitness service5. Joe logs onto his fitness service to review his progress. Depicted there are all the workouts he has done.6. Joe sees an encouraging comment left by Joe's trainer, who has been monitoring Joe's exercise, along with instructions to decrease the running distance tomorrow.

2. A002 Configure Fitness Equipment

Document Control

Version	Date	Ballot Date	Status
1.0	August 22, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A002_Configure Fitness Equipment
Modified Date:	
Version:	1.0
Description:	The ability to have the operating parameters of fitness equipment be set automatically for a user creates a better user experience and a more effective workout. The operating parameters may be defined by the user, a trainer or a service specializing in providing exercise content for fitness equipment.
Scope:	Mobile and stationary fitness devices, compute engines and services.
Primary Actor:	Joe who is training for a duathlon (run and bike)
Supporting Actors:	Joe's Coach
Precondition:	Joe has a treadmill and a PC, and has been participating in the <u>Track Fitness Information</u> use case.
Steps or Basic Flow:	<ol style="list-style-type: none">1. Joe gets on the treadmill to go for a run.2. The treadmill retrieves the available settings programs from the PC (which includes some programs provided by Joe's coach, some programs that Joe has purchased from a training web site and some that Joe has created from scratch) and displays them to Joe3. Joe selects the appropriate setting and modifies it to reduce the distance by 2 miles4. Joe completes his run. Details from his run, along with the equipment setting are relayed to the PC, which records them with Joe's fitness service.

3. A003 Exercise Gaming

Document Control

Version	Date	Ballot Date	Status
1.0	August 22, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A003_Exercise Gaming
Modified Date:	
Version:	1.0
Description:	Providing people with a competitive, highly engaging exercise opportunity increase exercise adoption and retention. The application of traditional online gaming concepts to virtual athletic competition provides that competitive and engaging exercise experience to many who would not otherwise participate in an athletic competition.
Scope:	Stationary fitness devices, compute engines and services.
Primary Actor:	Mary who is interested in bike racing
Supporting Actors:	Other novice bike racers
Precondition:	Mary has a bike trainer, a PC and an account with an online racing service.
Steps or Basic Flow:	<ol style="list-style-type: none">1. Mary enters a race on the online racing service's web site that starts in 10 minutes.2. She gets on her bike that is in front of her computer where she can see her own avatar and the avatars of her competitors lining up at the starting line.3. When the race starts, her avatar moves along the virtual course in accordance with her performance on the bike trainer. Additionally, the avatars of her competitors are positioned on the virtual course according to their cycling output.4. The bike trainer increases and decreases the resistance based on the defined terrain of the course.5. At the end of the race she sees that she finished 3rd.

A004 Track Fitness Information for Multiple Users

Document Control

Version	Date	Ballot Date	Status
1.0	August 22, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A004_Track Fitness Information for Multiple Users
Modified Date:	
Version:	1.0
Description:	Many components of a fitness tracking system are used by more than one person. It is important to attribute the appropriate workout information with the correct person.
Scope:	Stationary fitness devices, compute engines and services being used by more than one person.
Primary Actor:	Joe and Mary
Supporting Actors:	
Precondition:	Joe and Mary have a treadmill in their home that they both use. Both have their own running computer they use on the treadmill. Both have accounts with a fitness analysis service, and they share the same home PC to which the treadmill shares data.
Steps or Basic Flow:	<ol style="list-style-type: none">1. Mary gets on the treadmill to go for a run.2. The treadmill detects Mary's running computer and prompts her with a list of treadmill programs based on her stored preferences (see <u>Configure Fitness Equipment</u>).3. Mary selects a program and commences her run.4. At the end of her run, she goes to the computer and logs into her fitness analysis service and sees only the activity she has done, even though Joe has been using the same treadmill.

4. A005 Display and Record Streaming Fitness Sensor Data

Document Control

Version	Date	Ballot Date	Status
1.0	August 22, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A005_Display and Record Streaming Fitness Sensor Data
Modified Date:	
Version:	1.0
Description:	Personal fitness sensors stream data that people would like displayed and tracked on a variety of devices.
Scope:	Stationary fitness devices and compute engines
Primary Actor:	Joe
Supporting Actors:	
Precondition:	Joe has a wearable heart rate sensor, a treadmill and an exercise bike that are configured to share information with a PC and fitness service.
Steps or Basic Flow:	<ol style="list-style-type: none">1. Joe puts on his wearable heart rate sensor and starts a run on his treadmill.2. The treadmill recognizes the heart rate sensor that Joe is wearing and displays the streaming output from the sensor on the treadmill's display unit.3. When done with the run, Joe starts a ride on his exercise bicycle.4. The exercise bike recognizes the heart rate sensor that Joe is wearing and displays the streaming heart rate information provided by the sensor.5. When done, Joe goes to his PC to view his workout information.6. Presented to him are the two workouts, each containing the heart rate information for each exercise

5. A006 Receive Fitness Reminders

Document Control

Version	Date	Ballot Date	Status
1.0	August 24, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A006_Receive Fitness Reminders
Modified Date:	
Version:	1.0
Description:	Users benefit from receiving relevant messages and reminders delivered common non-fitness-related devices.
Scope:	Compute engines, services and user interface devices
Primary Actor:	Joe
Supporting Actors:	
Precondition:	Joe has a service to manage his fitness plan. Joe has configured the service to remind him of his daily exercise plan every morning via his cell phone, and if he hasn't completed his workout by the evening, the same reminder is displayed on his TV.
Steps or Basic Flow:	<ol style="list-style-type: none"> 1. At 6:00 am Joe's phone beeps indicating a message has arrived. 2. Joe views the message that says he is supposed to run 2 miles today 3. Joe dismisses the reminder and heads to work for an early meeting. 4. After a long day, Joe comes home and turns on the TV planning to unwind. 5. The first thing Joe sees on the TV is a message reminding him that he needs to run 2 miles today. Instead of sitting on the couch to unwind, he decides that going for his scheduled run would be a better way to unwind.

6. A007 Episodic & Non-Acute Remote Patient Monitoring

Document Control

Version	Date	Ballot Date	Status
1.0	August 25, 2006		Approved Open – In Service

Project Description

Use Case Title:	A007_Episodic & Non-Acute Remote Patient Monitoring
Modified Date:	
Version:	1.0
Description:	<p>The cornerstone of a chronic disease management ecosystem is the ability to remotely collect data about the patient in an episodic fashion for non-acute purposes and share it with their caregivers. Being able to track this data is the first step towards managing a patient with one or more chronic diseases.</p> <p>The collection of data will take place in the personal and home setting of the patient (e.g. at home, at work, on the move).</p> <p>Typical patients would include those with a medium to low severity condition where immediate communication of data and streaming data is not required.</p>
Scope:	<p>Mobile and residential health devices, compute engines and services.</p> <p>The scope of this use cases is limited to the collection of data; patient feedback & interaction (either automatic or from a professional) is not included in this use case.</p> <p>Continuous and high acuity monitoring (e.g. for emergency response) are out of scope of this use case.</p>
Primary Actor:	James has multiple chronic conditions (CHF, Diabetes, Hypertension), is 65 years old and retired; he has some declined cognitive and motor skills.
Supporting Actors:	<p>Remote Patient Monitoring service</p> <p>James' caregiver</p>

Precondition:	<p>James is enrolled in a remote patient monitoring program.</p> <p>James has access to required utilities (e.g. telephony (mobile/fixed), Internet connection, power, etc)</p>
Steps or Basic Flow:	<ol style="list-style-type: none"> 1. The necessary devices are being configured and the proper working of the devices is verified (either self install or assisted install) 2. Upon usage James activates the devices and optionally identifies himself. 3. James performs the required measurements (e.g. blood glucose, blood pressure, weight, heart rate, SpO₂, etc) 4. The measurement devices will upload the measurement data to the Remote Patient Monitoring (RPM) service at the earliest convenience (store & forward model). 5. The measurement data is stored in the RPM service 6. The RPM service makes James' data available to authorized parties in James' care community (e.g. James' caregiver).

7. A008 Continuous and Acute Remote Patient Monitoring

Document Control

Version	Date	Ballot Date	Status
1.0	August 28, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A008_Continuous and Acute Remote Patient Monitoring
Modified Date:	
Version:	1.0
Description:	In cases where a patient requires immediate feedback about their condition, a remote monitoring system must be able to provide continuous monitoring of a patient's physiological parameters. Typical patients who may require this type of system are those who have been recently discharged from the hospital and for patients who are going through intensive therapy adjustments.
Scope:	The scope of this use case is limited to the collection of data from one or more medical devices and the transmission of that data through some form of personal gateway (cellphone, PDA, home hub, PC)
Primary Actor:	Patient has one of more chronic conditions (CHF, Diabetes, Hypertension), middle age to older adult, considered high acuity patient due to recent hospitalization or potential for adverse effects due to intensive therapy adjustments
Supporting Actors:	Healthcare provider, family member, home health agency, disease management firm.
Precondition:	Patient has been enrolled in a remote patient monitoring program, has access to the required utilities / medical devices, and has been instructed on how to use the system.

<p>Steps or Basic Flow:</p>	<p><u>Example 1:</u> Patient with cardiovascular disease was recently discharged from hospital and agrees to use an ECG device to monitor cardiac arrhythmia.</p> <ol style="list-style-type: none"> 1. The patient is provided with the necessary devices, the devices are configured and are verified to be functional (either self install or assisted install). 2. Upon activation, the device is continually recording the ECGs from the patient during daily activities. 3. The recorded ECGs are transmitted to the personal gateway and then transmitted to the healthcare professional for analysis and feedback. 4. The patient then receives feedback from the healthcare professional on what actions must be taken. 5. The patient views the information transmitted through the personal health gateway and take the appropriate actions. <p><u>Example 2:</u> Patient who has trouble sleeping has agreed to participate in a sleep study that will be administered by a healthcare professional.</p> <ol style="list-style-type: none"> 1. The patient is provided with the necessary devices (wireless SpO2, HR, EEG sensors). The devices are configured and verified to be functional (either self install or assisted install). 2. At night, the patient enables the sensors to record the required signals. The signals are streaming, time-stamped and transmitted real-time to a PC. 3. PC buffers data and runs an algorithm to ensure the data is valid prior to being transmitted. 4. PC then transmits the data to the healthcare professional for review and feedback. The healthcare professional views the data and provides the appropriate diagnosis for the condition
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8. A009 Asynchronous Patient – Medical Provider Interaction

Document Control

Version	Date	Ballot Date	Status
1.0	August 29, 2006		Approved Open – In Service

Project Description

Use Case Title:	A009_ Asynchronous Patient - Medical Provider Interaction
Modified Date:	
Version:	1.0
Description:	<p>Asynchronous patient interaction includes non-real time interaction between patient, medical professionals or caregivers. Bi-directional information exchange may be used for health assessment, education and positive reinforcement for review at the patients' earliest convenience.</p> <p>As an example, this case demonstrates cognitive assessment through asynchronous patient-medical provider Interaction. This is accomplished through a web based application that is run locally on the client side (PC, Compute engine), the results of which is uploaded to a server. The medical provider in turn sends results via email with comments back to the patient.</p>
Scope:	<p>The scope of this use case is limited to a Web based administration of a standardized battery of tests (PC, Compute engine) of cognitive functions related to speed of processing, new verbal learning and visual- spatial abilities. One objective is to determine parameters of early cognitive decline in suspected dementia related illnesses. Such data is purported to be useful in early intervention (e.g. medication). This use case demonstrates non real-time, asynchronous interaction between patient and physician.</p>
Primary Actor:	Scott is a 73 year old right handed male presenting with reported significant cognitive decline in everyday memory functions for the last 3 to 6 months.
Supporting Actors:	Scott's wife/caregiver assists in web based registration and set up. Scott's physician reviews scores daily and gives feedback and encouragement to Scott through email.
Precondition:	Initial telephone support has been set up to assist in the registration process and to answer questions.

Steps or Basic Flow:	<p>Example: Scott</p> <ol style="list-style-type: none">1. The patient, Scott, has been given a URL for registration to the standardized administration of the battery of tests2. Patient is administered a 10 minute pre-assessment questionnaire pertaining to everyday memory functioning.3. Patient completes the battery of tests each day which is uploaded to a designated server.4. Scott's physician reviews scores daily and gives feedback and encouragement to Scott through email.
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9. A0010 Synchronous Patient – Medical Provider Interaction

Document Control

Version	Date	Ballot Date	Status
1.0	August 29, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A010_ Synchronous Patient – Medical Provider Interaction
Modified Date:	
Version:	1.0
Description:	<p>Synchronous patient interaction includes real-time interaction between patient, medical professional or caregiver. Bi-directional information exchange may be used for health assessments, education and may include video conferencing (voice, data) or instant text messaging.</p> <p>As an example, this case demonstrates cognitive assessment through synchronous patient-medical provider Interaction. This is accomplished through a real - time Web session with video conference capabilities. In this case example, the physician is conducting the cognitive assessment in real-time and offering consultation and rehabilitative strategies.</p>
Scope:	The scope of this use case is limited to a Web based administration of a standardized battery of tests (PC, Compute engine) of cognitive functions related to speed of processing, new verbal learning and visual- spatial abilities. One objective is to determine parameters of early cognitive decline in suspected dementia related illnesses. Such data is purported to be useful in early intervention (e.g. medication). This use case demonstrates the use of real-time or synchronous interaction between patient and physician.
Primary Actor:	Scott is a 73 year old right handed male presenting with reported significant cognitive decline in everyday memory functions for the last 3 to 6 months and has been determined to meet the criteria for enrollment in the study
Supporting Actors:	Scott's wife/caregiver assists in web based registration and set up.
Precondition:	Initial telephone support has been set up to assist in the registration process and to answer questions.

Steps or Basic Flow:	<p>Example: Scott</p> <ol style="list-style-type: none"><li>1. The patient, Scott, has been given a URL for registration to the standardized administration of the battery of tests<li>2. Physician engages Scott in a Web based weekly interactive 20 minute session in real – time to evaluate prospective memory capabilities (e.g. remembering to perform a task in the future), exams errors of commission and omission on various tasks and offers rehabilitative strategies. This Web based session includes real-time video conferencing between the patient and medical care provider.
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10. A011 Shared Health Data of Multiple Patients for Medical Records

Document Control

Version	Date	Ballot Date	Status
1.0	August 29, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A011_Shared Health Data of Multiple Patients for Medical Research
Modified Date:	
Version:	1.0
Description:	<p>This case depicts the use of shared medical data among three academic research facilities for the purpose of studying age associated cognitive decline versus the onset of a dementia process.</p> <p>Evaluation of cognitive status is conducted though remote home based computer administration of a standardized battery of tests. One objective is to determine parameters of early cognitive decline in suspected dementia related illnesses. Such data is purported to be useful in early intervention (e.g. medication). Each patient consents to the study per each facility's Internal Review Board (IRB) with assurance of privacy and confidentiality of data. The study is conducted for three months. Two hundred patients have met the criteria for enrollment. A Principal Investigator collates the data from servers associated with the three academic facilities. Consent forms for release of information to medical provider regarding results and standardized norms are made available to each patient.</p>
Scope:	<p>The scope of this use case is limited to a Web based administration of a standardized battery of tests (PC, Compute engine) of cognitive functions related to speed of processing, new verbal learning and visual- spatial abilities. Each patient is administered a 10 minute pre-assessment questionnaire pertaining to everyday memory functioning. The battery of tests takes 10 minutes to complete on a daily to weekly basis. Results from the computer administered questionnaire and tests are scored and uploaded to a server at one of three selected academic research institutions.</p>

Primary Actor:	Scott is a 73 year old right handed male presenting with reported significant cognitive decline in everyday memory functions for the last 3 to 6 months and has been determined to meet the criteria for enrollment in the study.
Supporting Actors:	Scott's wife/caregiver assists in web based registration and set up.
Precondition:	Initial telephone support has been set up to assist in the registration process and to answer questions.
Steps or Basic Flow:	<p>Example: Scott</p> <ol style="list-style-type: none"> 1. The patient, Scott, has been given a URL for registration to the standardized administration of the battery of tests 2. Patient is administered a 10 minute pre-assessment questionnaire pertaining to everyday memory functioning. 3. Patient completes the battery of tests each day which is uploaded to a designated server.

11. A012 Track Elder Information

Document Control

Version	Date	Ballot Date	Status
1.0	August 24, 2006		Approved Open – In Service

Project Description

Use Case Title:	A012_Track Elder Information
Modified Date:	August 24, 2006
Version:	1.0
Description:	<p>The core functionality of a Continua Elder Care system consists of the gathering of information from devices in the home and the sending of this information to a compute engine.</p> <p>Data may then be sent on to local devices for action or to a service for further processing and activity.</p> <p>Data may also be viewable by the individual on their compute engine.</p>
Scope:	<p>Devices: environmental sensors, activity sensors, mobile and stationary</p> <p>Compute engines: health appliance, set top box, PC, multi-sensor, wearable, body monitor, PDA, cell phone</p>
Primary Actor:	Elderly Person: Mary (Age: 65+)
Supporting Actors:	
Precondition:	Mary has a health appliance and a collection of sensors that report information to the health appliance. The health appliance is configured to transmit information to a monitoring service.
Steps or Basic Flow:	<ol style="list-style-type: none"> 1. Mary wakes up, and her bed sensor detects that she is out of bed. 2. Motion sensors detect that Mary has moved into the bathroom. 3. This information is sent to Mary's health appliance and then on to a monitoring service where it may be used to make inferences about Mary's health, safety, and location.

12. A013 Receive Reminders for Important Activities

Document Control

Version	Date	Ballot Date	Status
1.0	August 24, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A013_Receive Reminders for Important Activities
Modified Date:	August 24, 2006
Version:	1.0
Description:	<p>An elderly person can be reminded of important activities in their daily routine, such as taking medication, performing social activities, or performing other health-related activities.</p> <p>This includes the combination of a compute engine and a medication dispenser, PDA, or other sensor. The compute engine sends medical activity frequency information to the medication dispenser, PDA, or other sensor and then tracks compliance.</p> <p>Compliance information may then be sent to a service provider for tracking or monitoring</p>
Scope:	<p>Devices: pill reminders, PDAs</p> <p>Compute engines: health appliances, PCs, PDAs, cell phones</p> <p>Display devices: pill reminder, PDA, pager, Local display (TV or LCD panel), remote access terminals.</p> <p>Services: monitoring service, data storage service</p>
Primary Actor:	Elderly Person: Mary (Age: 65+)
Supporting Actors:	
Precondition:	Mary has a health appliance and a pill dispenser that reports compliance to her health appliance. Mary or a caregiver sets up reminders. Mary has a pager that will receive her reminders.

Steps or Basic Flow:	<ol style="list-style-type: none">1. At 9am each morning, Mary is reminded via her pager to take her morning medication.2. Mary takes her pills, so the pillbox reports to the health appliance that this activity is complete, acknowledging the reminder.3. Thanks to the reminders, Mary works through her daily chores knowing that she has not missed any important activities.
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13. A014 Monitor Activities of Daily Living

Document Control

Version	Date	Ballot Date	Status
1.0	August 24, 2006		Approved Open – In Service

Project Description

Use Case Title:	A014_Monitor Activities of Daily Living
Modified Date:	August 24, 2006
Version:	1.0
Description:	This includes the monitoring of daily activities, such as sleep, exercise, motion, communication (email, phone) with others. Data is sent from sensors placed throughout the house or on the individual to a compute engine and then to a monitoring service. A remote caregiver can then log on to the monitoring service to view this information or analysis of it to get daily activities status. The monitoring service can also raise alerts related to short-term situations requiring attention (such as staying in bed a few hours longer than normal or not leaving the house for multiple days).
Scope:	Devices: motion sensors, bed sensors, door sensors, phone on/off sensors, PC applications, fitness equipment, multi-sensor, wearable, body monitor Compute engines: health appliance, set top box, PC, multi-sensor, wearable, body monitor Services: monitoring service
Primary Actor:	Mary's daughter, Dora
Supporting Actors:	Elderly Person: Mary (Age: 65+)
Precondition:	Mary has a health appliance and a collection of sensors, including bed, motion, and door sensors that report information to the health appliance. The health appliance is configured to transmit information to a monitoring service. Dora has an account with the monitoring service provider. Mary has provided Dora access to the information.

Steps or Basic Flow:	<ol style="list-style-type: none">1. Dora logs into the monitoring service used by Mary.2. Dora sees that Mary got out of bed at the normal time today.3. Dora sees that the duration and quality of sleep are normal.4. Dora sees there has been motion in the house and that Mary has been in the bathroom, kitchen, and living room today.5. Dora logs off of the monitoring site knowing the condition of Mary.6. On a different day, Dora receives a page that Mary has been sleeping for 3 hours past the time she usually awakens.7. Dora gives Mary a call to discuss, and Mary mentions that she has been feeling tired and achy. Mary agrees to visit her doctor at the appointment Dora will set up for her.
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14. [A015 Monitor Safety](#)

Document Control

Version	Date	Ballot Date	Status
1.0	August 28, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A015_Monitor Safety
Modified Date:	August 28, 2006
Version:	1.0
Description:	This includes the monitoring of safety conditions within the home (gas on/off, carbon monoxide level low, etc.). Data is sent from sensors placed throughout the house or on the individual to a compute engine and may be sent to a monitoring service. If a monitoring service is used, a remote caregiver or the individual can receive alerts and get status.
Scope:	<p>Devices: motion sensor, sound sensor, smoke sensor, door/lock sensor, light sensor, gas sensor, temperature sensor, water/faucet sensor, carbon monoxide sensor, thermostat, cameras</p> <p>Compute engines: health appliance, set top box, PC, PDA, cell phone</p> <p>Services: monitoring service</p>
Primary Actor:	Elderly Person: Mary (Age: 65+)
Supporting Actors:	Mary's daughter, Dora
Precondition:	Mary has a health appliance and a collection of sensors, including gas, carbon monoxide, and door sensors that report information to the health appliance. The health appliance is configured to transmit information to a monitoring service. Dora has an account with the monitoring service provider. Mary has provided Dora access to the information.

Steps or Basic Flow:	<ol style="list-style-type: none">1. Mary leaves her house to take her morning walk.2. During her morning walk, Mary is not sure if she has turned off her gas stove.3. She decides to use her cell phone to check if the gas switch is turned off.4. The gas switch responds to say her gas switch is indeed off.5. Mary is confident that the gas switch is turned off and continues with her morning walk.6. Dora could log in from work at the same time, and sees that Mary has left the house and that the door is locked and the gas is off.
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15. A016 Automate Household Activities

Document Control

Version	Date	Ballot Date	Status
1.0	August 28, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A016_Automate Household Activities
Modified Date:	August 28, 2006
Version:	1.0
Description:	<p>This includes analysis by a compute engine to detect the needs of an individual as measured by sensors and then to cause actuators to respond to them to help the individual. For example, bed sensors could detect that a patient has gotten out of bed and, via a compute engine, trigger other activities in the home to help the individual (lights on, TV on, medication reminders sent, etc.).</p> <p>This information could be sent to a service for analysis, triggers, or for viewing by a remote caregiver.</p>
Scope:	<p>Devices: motion sensor, bed sensor, door sensor, activity sensor, etc.</p> <p>Actuators: lights, other health devices (ex. pill box with reminder interface, blood pressure cuff), TV</p> <p>Compute engines: health appliance, set top box, PC, PDA, cell phone</p> <p>Services: monitoring service</p>
Primary Actor:	Elderly Person: Sonya (Age: 75+)
Supporting Actors:	
Precondition:	Sonya has a health appliance connected to a bed sensor, motion sensors, and her bedroom and bathroom lights.

Steps or Basic Flow:	<ol style="list-style-type: none">1. In the middle of the night, Sonya gets out of bed, and her bed sensor sends the message to her health appliance.2. Since the health appliance now knows that Sonya is out of bed in the middle of the night, it automatically turns on the light in the bathroom, giving Sonya a path to follow to get to the bathroom.3. When Sonya leaves the bathroom, motion sensors detect that she has left the room, and her health appliance triggers the light in the bathroom to go off and the one over the bed to go on.4. Sonya follows the illuminated path back into bed.5. Bed sensors send a message to the health appliance that Sonya is back in bed, and the health appliance causes the light over her bed to turn off as well.
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16. A017 Respond to Emergency

Document Control

Version	Date	Ballot Date	Status
1.0	August 29, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A017_Respond to Emergency
Modified Date:	August 29, 2006
Version:	1.0
Description:	This includes sensors that detect emergency conditions (fall sensor) and call for emergency response as well as sensors that can be used to call for emergency response directly (VOIP badge).
Scope:	Devices: fall sensor, VOIP badge Compute Engine: PC or healthcare appliance Service: home care service with life alert function
Primary Actor:	Jill (70+, lives alone)
Supporting Actors:	Home care service emergency responders
Precondition:	Jill has a health care appliance connected to her VOIP badge. Jill is enrolled in a home care service that receives input from her health care appliance and VOIP badge. Jill begins each day by clipping a lightweight (2 ounce) VOIP badge on her sweater.
Steps or Basic Flow:	<ol style="list-style-type: none"> 1. One morning, Jill falls while pulling something out of a cupboard. 2. Jill discovers that she cannot get up and cannot reach a phone. 3. She says a keyword that her VOIP badge recognizes, and the VOIP badge initiates a call to her home care service. 4. The care service responder talks to Jill via the VOIP badge and determines that she needs immediate assistance. 5. The home care service sends messages containing the hospital destination and Jill's address to the emergency responders as well as the cell phone of a pre-designated family member. 6. The emergency responders are able to find Jill's home and take her to her hospital where her family is waiting to meet her.

17. A002 Configure Fitness Equipment

Document Control

Version	Date	Ballot Date	Status
1.0	August 29, 2006		Approved Closed – Time Expired

Project Description

Use Case Title:	A018_Consult with Caregiver
Modified Date:	August 29, 2006
Version:	1.0
Description:	An individual can consult with his or her caregiver via a video connection.
Scope:	Devices: N/A Compute Engine: PC or healthcare appliance Service: Health care service
Primary Actor:	Jill (70+, lives alone)
Supporting Actors:	Jill's caregiver
Precondition:	Jill is enrolled in a health care service that incorporates online consultations within its overall care program. The health care service has sent Jill a health care appliance, which has been configured and is working properly.
Steps or Basic Flow:	<ol style="list-style-type: none"> 1. Jill has noticed a change in her health status and requests an online appointment with her care giver to ask about it. 2. Jill sits down at her health care appliance at the time of her appointment. 3. She initiates a web cam call to her care giver's office. 4. When she reaches her caregiver, she is able to view her caregiver's face as the caregiver reviews her status to determine if Jill needs to be seen in person or needs a referral. The caregiver decides Jill does not need to be seen in person, but the caregiver does change Jill's home care program and suggests that Jill check back in one week if her symptoms persist.