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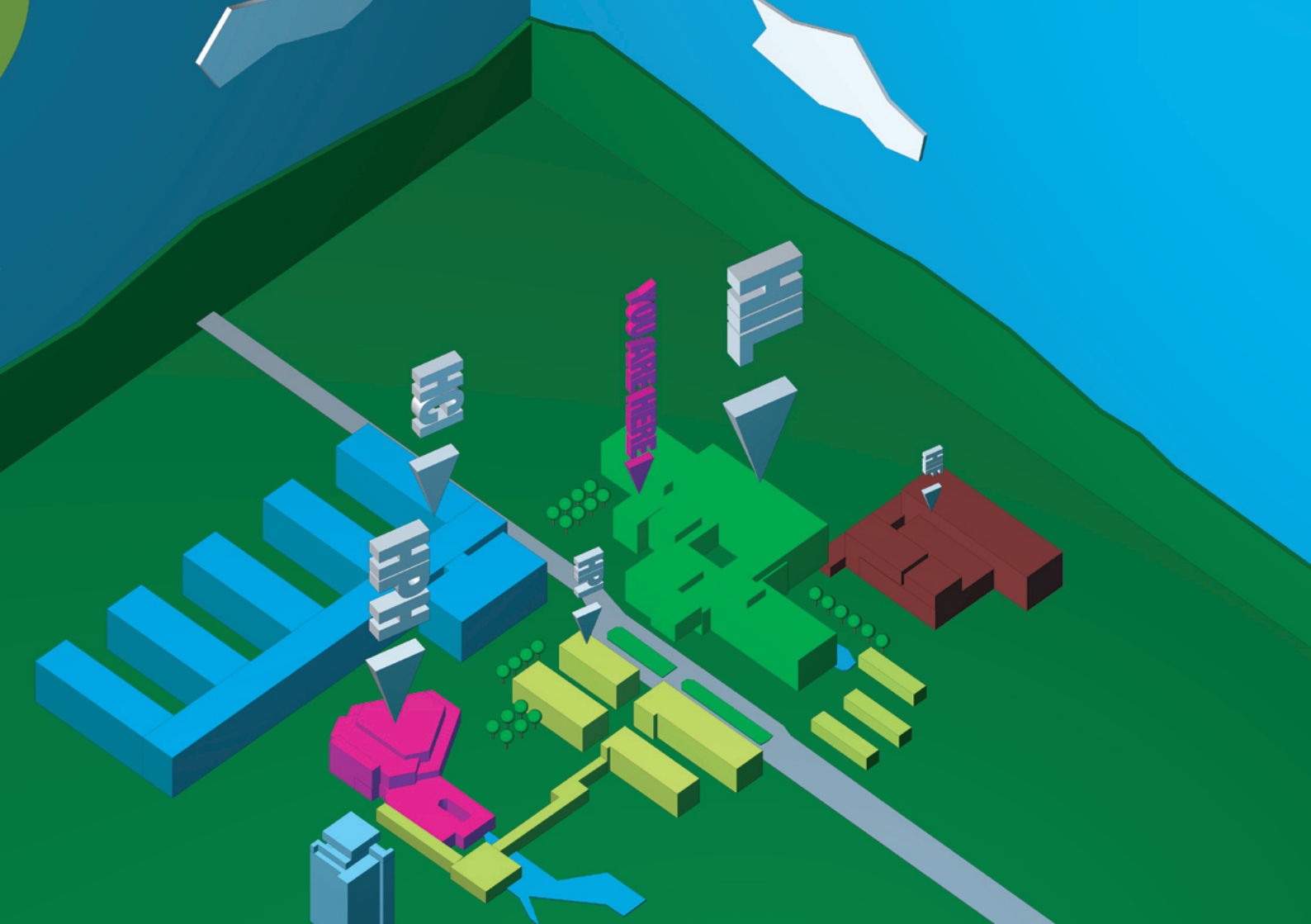
The ETH Game is a pervasive question & answer role playing game for the mass of ETH students, faculty, and staff. During three months, it takes place campus wide and uses ETH's extensive wireless LAN infrastructure for creating a highly site specific, location based academic learning experience - playable with any given mobile or stationary computer and a valid n.ethz account.

Upon physically entering a pre defined knowledge space anywhere on campus, this (sometime moody) "locus" will ask players location dependent questions concerning general and technical ETH topics. By collecting game credits from loci, a player levels up, turning from a simple game student to a distinguished game professor. If a question has not been answered to a locus's satisfaction, a player has to consult with another player in proximity and solve the riddle cooperatively. Eventually, only one player can win the ultimate merit: the ETHGame Nobel Prize.

In this feasibility booklet, we - students and teachers of the ETHGame design studio class (winer semester 2004/05) - present the ETHGame concept, our prototyping findings, the project's research scope and sustainability, and its implementation consequences. Our goal is to raise funds to actually implement the ETHGame.

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2. The ETHGame setting

Zurich, 2155 AD: To improve the procurement of scientific knowledge, the entirety of professors at the Swiss Federal Institute of Technology carries out a highly innovative and interdisciplinary experiment: Rooms of knowledge shall take over their teaching part, so that the professors may consecrate themselves to their own research.

Now, it is time for you to take control over the ETH and its departments: Improve your knowledge by answering site specific questions. Ascend the levels of student, teaching assistant, assistant, doctor, and professor. Rise to supreme power in your academic institution. Discover new places. Interact with real players to raise your own professorship. Get the fame, the power, the might, and the knowledge...until you may become the one and only ETHGame Nobel Prize Winner.

Take your chance and log into the game at www.ethgame.ethz.ch - surpass your opponents with aptness, ambition, communication and collaboration willingness, and, of course, knowledge.

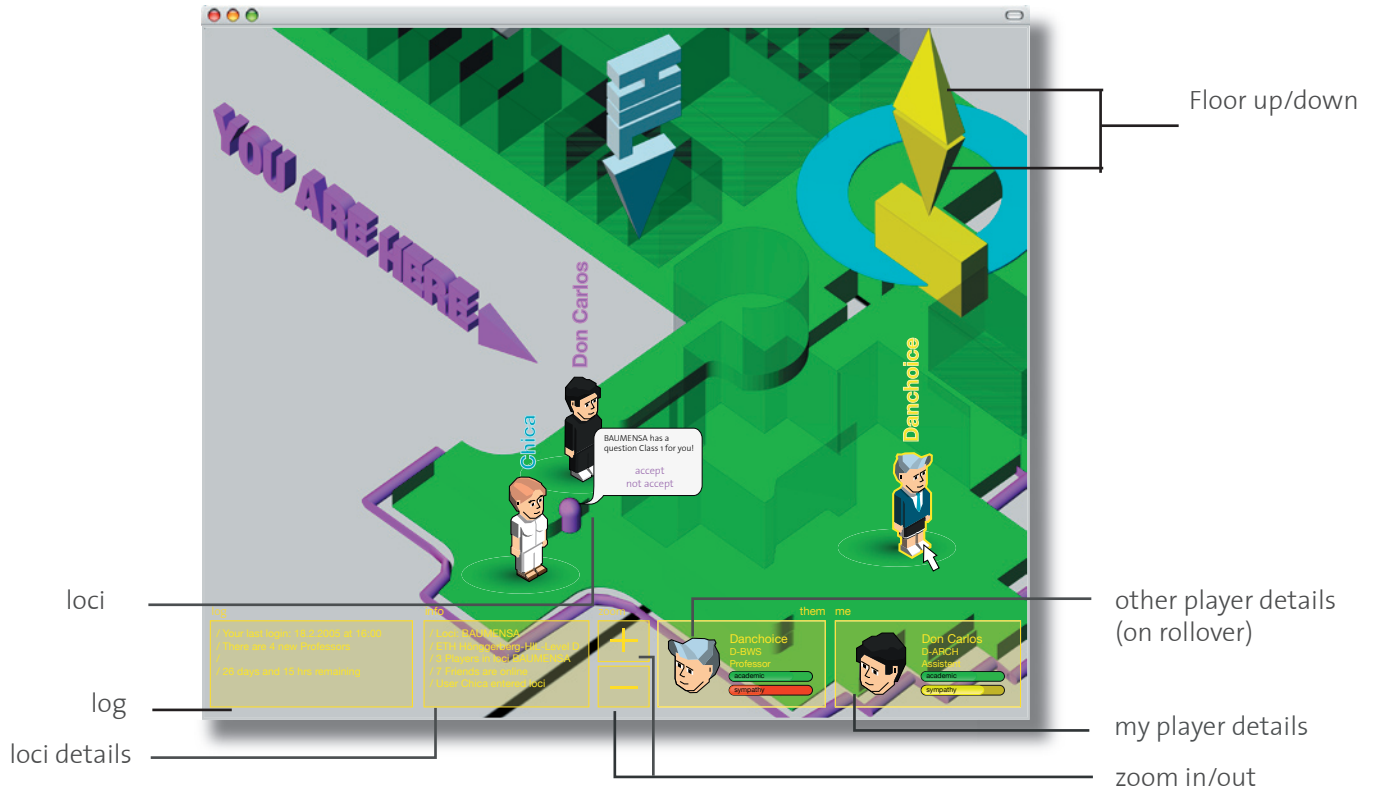


fig. 3.1.1: playerfinder

3. Functional specifications

3.1 Rules and gameplay

3.1.1 Goal of the Game

Depending on your physical position on campus, answer questions, interact with other players, collect points and add them to your highscore or cash points to get a discount for coffee.

Earn the ETHGame Nobel Prize as fast as you can and win a journey to Stockholm, the Nobel Prize city of origin.

3.1.2 Getting started

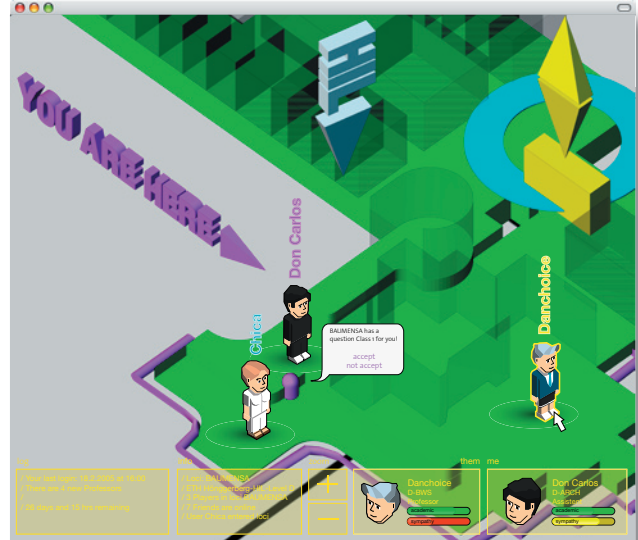
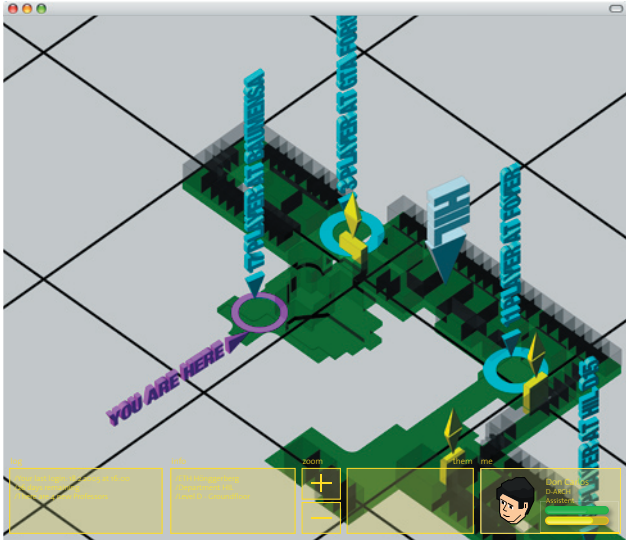
To play, start a web browser and go to the following homepage: www.ethgame.ethz.ch. Download the game application. Install it onto your computer, and run it.

3.1.3 Registration

Register with the game using your personal n.ethz-account. Choose your nickname and password. You receive your your personal game avatar, a basic student which carries the look of your very own ETH department. Next, the game interface appears (fig. 3.1.3).



fig. 3.1.2: four states of playerfinder navigation (zoom in/ zoom out)



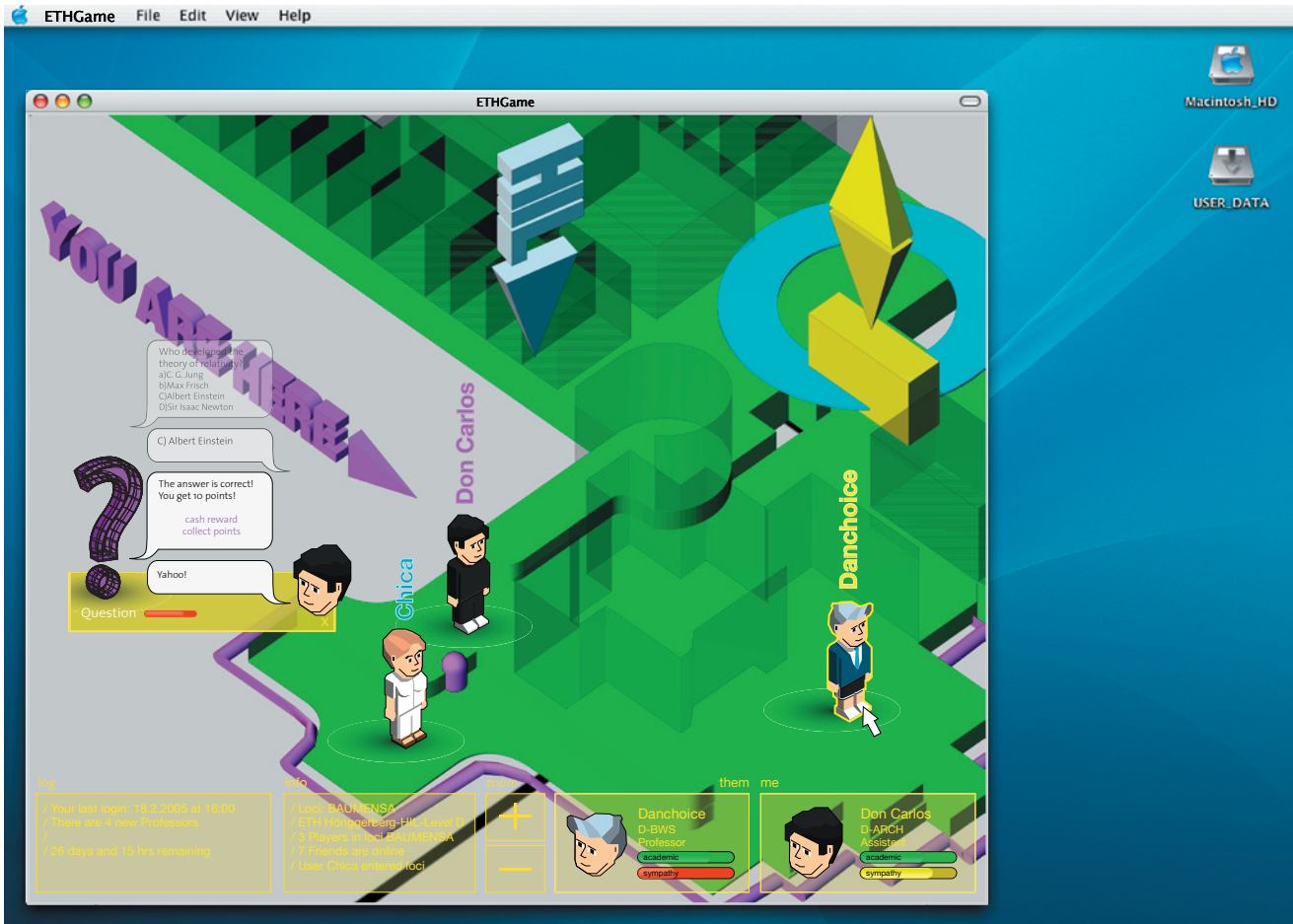


fig. 3.1.3: loci - player dialogue

3.1.4 Starting the game

After you have logged in, the first multiple choice question pops up in your dialogue window (fig. 3.1.3). You may choose to answer it or not. If you cannot, watch out for, and chat with other players in your proximity. If you choose to answer the locus question, two possible events may take place:

1. Your answer is correct: you receive points.

In order to receive a new question:

- Change the locus to another knowledge space
- Log out / log in

2. Your answer is wrong:

You “keep” the question and have to seek another player to help you answer it. You can either (a) find a collaboration partner virtually with your chat client, or (b) inquire with another player using the player finder, and then ask her or him face-2-face. Your potential play partner may join in and help reply the pending answer. From here, the following gameplay takes place:

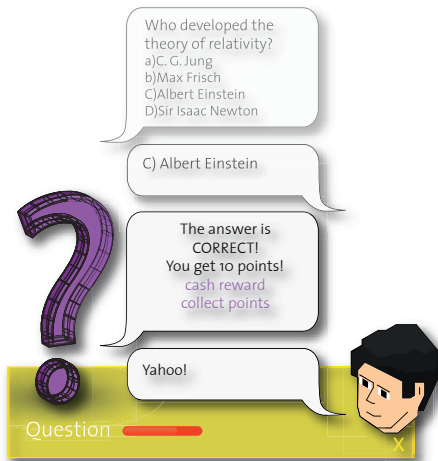


fig. 3.1.4: player gives a correct answer

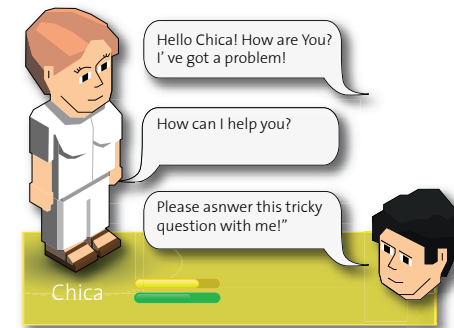
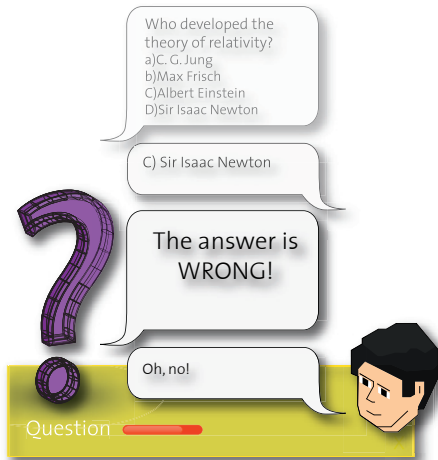


fig. 3.1.5: player gives a wrong answer

Answer is correct:

a: The answering player get the points as you get rid of your question.

b: Both players each share half the points.

Answer is wrong:

The player who has helped you from now on bears the question.

Important: You cannot receive new questions as long as you are a **question bearer!**

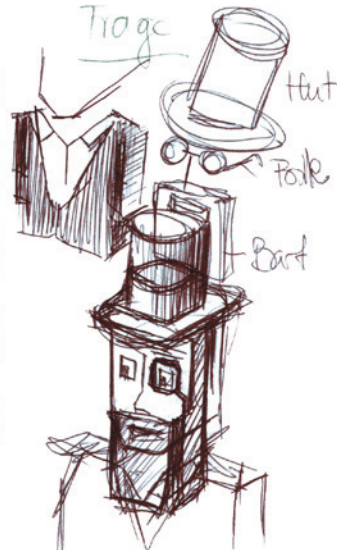
3.1.5 Collecting points and locus behavior

The amount of credit points you earn depends on your courage, your knowledge in virtually all ETH fields, and on your on campus mobility. You get more points by answering questions at loci within departments other than your own. Loci may turn out to be moody at times, so that they simply block answers, or are currently unavailable due to their consultation hour.

Instead of adding credits to your score, you may also convert game points into coffee rebates.



Architekt



T-Shirt



Sportstudent



fig. 3.1.6: career status is symbolised with different clothings and accessories

3.1.6 Level ups

During the game, you are answering location based questions. For each right answer you obtain points. Your score is increasing. At a certain score, you will be issued a department specific question. In case your answer is correct, you level up. For each level up, your avatars look is changing.

3.1.7 Levels

Student ---> ancillary assistant ---> teaching assistant ---> doctor ---> professor (see avatars).

3.1.8 Winning the ETHGame

Once you've reached the level of the professor, keep collecting points to ensure your victory. Only one, and only the best player wins the ETHGame Nobel Prize with the last locus question. Where, and when, will the question take place?

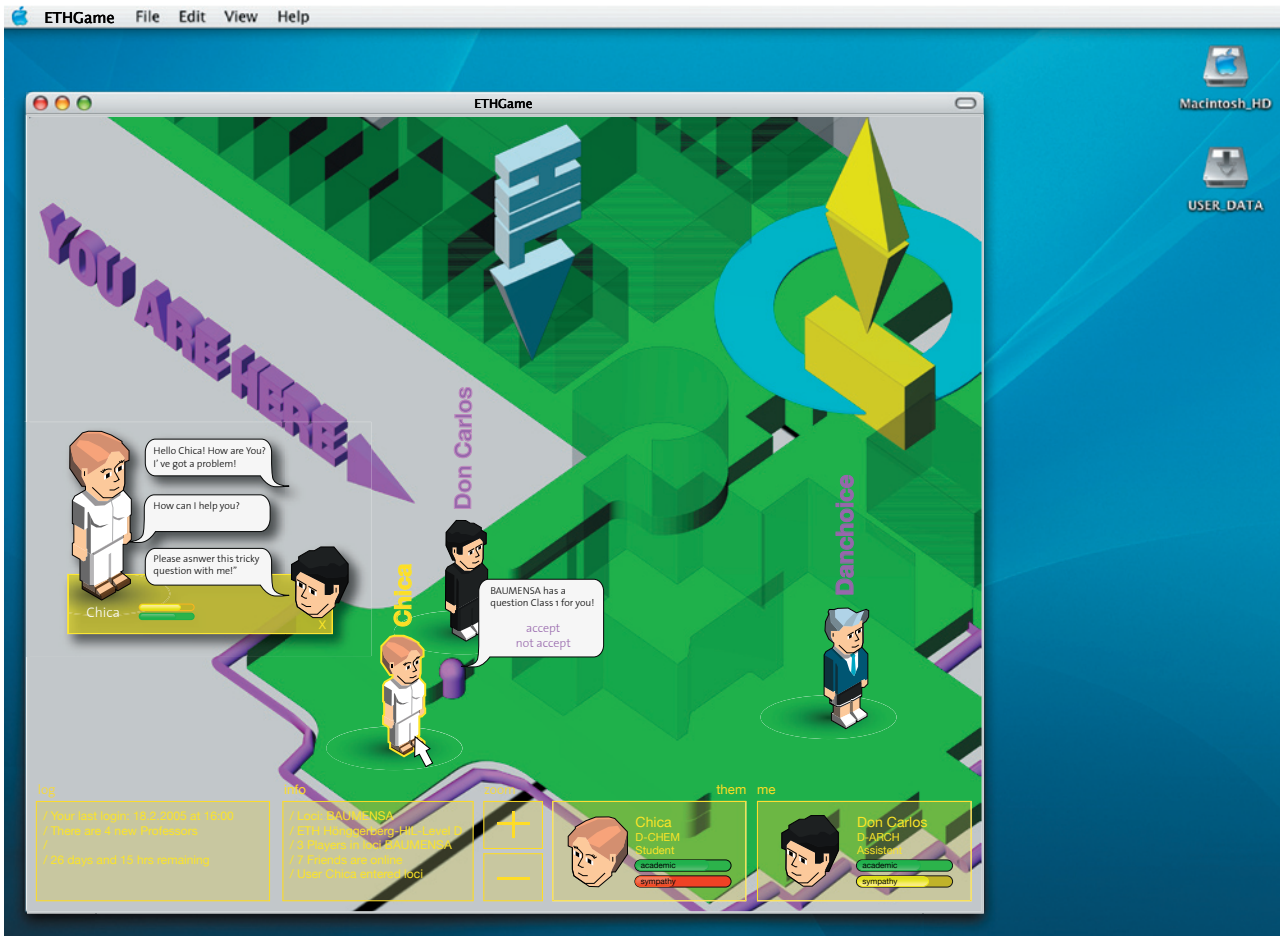


fig. 3.1.7: floating dialogue windows for quick chat sessions

The screenshot displays the ETHGame interface within a window titled "ETHGame". The background is a blue desktop with icons for "Macintosh_HD" and "USER_DATA". The game environment is a 3D maze with green walls and a blue path. A large purple arrow points towards the maze with the text "YOU ARE HERE".

Characters and their interactions:

- Chica** (D-CHEM Student):
 - Dialogue: "Hello Chica! How are You? I've got a problem!"
 - Dialogue: "How can I help you?"
 - Dialogue: "Please answer this tricky question with me!"
- Don Carlos** (D-ARCH Assistant):
 - Dialogue: "Hello Chica! How are You? I've got a problem!"
 - Dialogue: "How can I help you?"
 - Dialogue: "Please answer this tricky question with me!"
- BAUMENSA**:
 - Dialogue: "BAUMENSA has a question Class 1 for you!"
 - Options: "accept", "not accept"

Bottom status bar:

- log**:
 - Your last login: 16.7.2008 at 16:30
 - There are 3 new Professors
 - 20 likes and 10 new messages
- Info**:
 - /User: BAUMENSA
 - /ETH: Hirschengraben, Hirschengraben 1
 - /A: Physik in der ETH ZÜRICH
 - /F: Friends are online
 - /New: 10 new messages, 100
- them**:
 - Chica** (D-CHEM Student):
 - academic: [Progress bar]
 - sympathy: [Progress bar]
 - Don Carlos** (D-ARCH Assistant):
 - academic: [Progress bar]
 - sympathy: [Progress bar]
- me**: (Placeholder for the user's own profile)

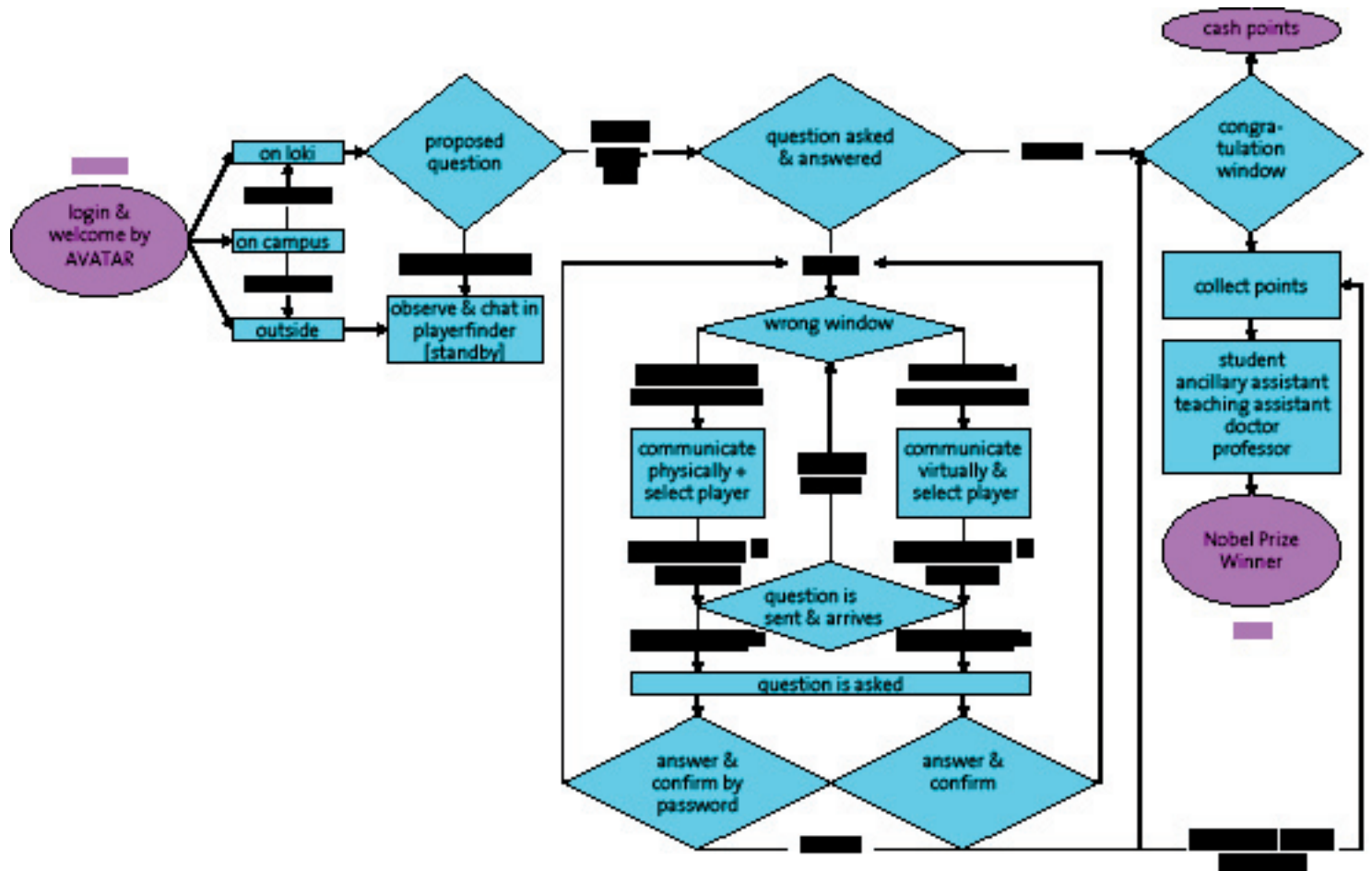


Fig 3.1.8.: flow chart of the game; basic assumption (exit is any time possible)

3.2 Credit system

There are three factors in the credit system which must be considered:

3.2.1 A player from a small department and a small cluster size with just a few access points should not be at a disadvantage.

A	B	C
player's own department	other department on the same campus (Center or Höggerberg)	other department on another campus (Center or Höggerberg)
+ 1 point	+ 2 points	+ 3 points

3.2.2 A courageous and enthusiastic player who explores other buildings and departments should be rewarded.

A	B	C
player's own department	other department on the same campus (Center or Höggerberg)	other department on another campus (Center or Höggerberg)
+ 1 point	+ 2 points	+ 3 points

3.2.3 Should a player cooperate with another player before giving an answer, he should be rewarded.

3.2.4 From this, the following level up system results:

ancillary assistant:

min: Basic player answers 5 questions per week
and gets 1 - 6 points for each,
meaning: 5 - 30 points per week.
He should need less than a month to become an ancillary assistant,
meaning: 20 - 120 points to reach the next level.

max: A motivated player answers 20 questions per week
and gets 1 - 6 points for each.
meaning: 20 - 120 points per week.
At the minimum, he should need one week to become an ancillary assistant,
meaning: 20 - 120 points to reach the next level.

teaching assistant: minimum 320 points
doctor: minimum 900 points
professor: minimum 2160 points
Nobel Prize Winner: the professor with the most points after three months

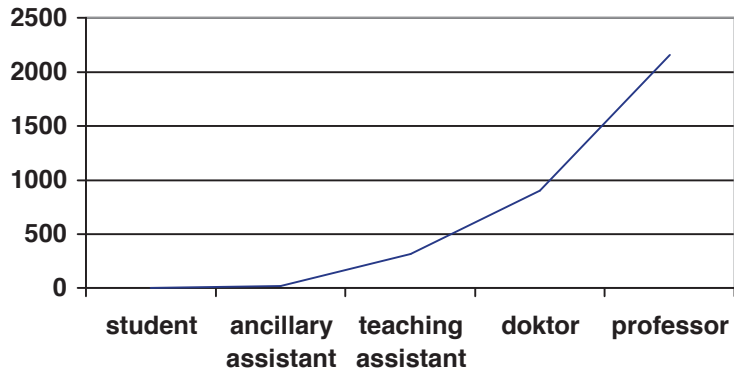


fig. 3.2.1: credits needed to level up

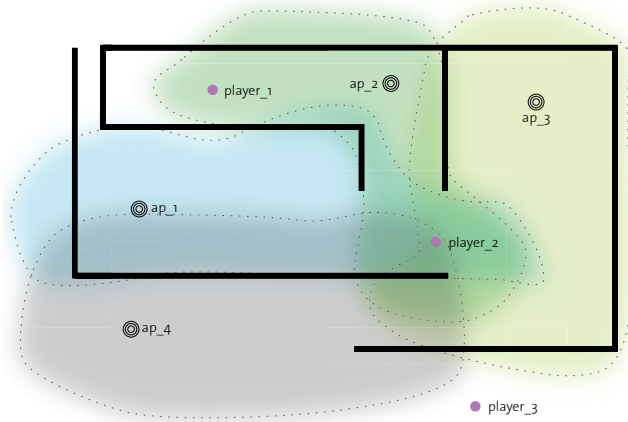


fig. 4.1.1 assumption of radio cloud (1st situation - planview)

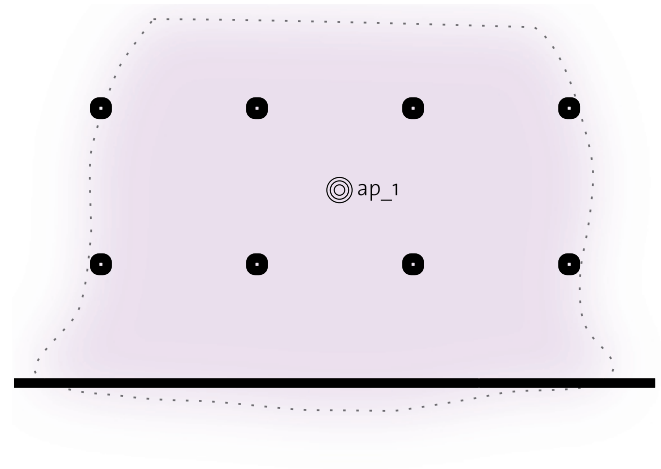


fig. 4.1.2 assumption of radio cloud (2nd situation - planview)

4. Technical specifications

4.1 Premise

The wireless infrastructure at the ETH Zurich is Europe's largest wireless local area network, with, for example, over 50 access points up and running at the HIL building complex alone.

Usually, the ETH community uses these access points as internet connection gates for mobile computers. The ETHGame uses this infrastructure to locate single clients (the players) in a building by simply measuring the signal strength of the receivable access points. Each access point has its own unique identification - the MAC address.

The position of the clients can be detected by simply transferring the MAC addresses of the available access points to the game server. The server stores all access points in its database.

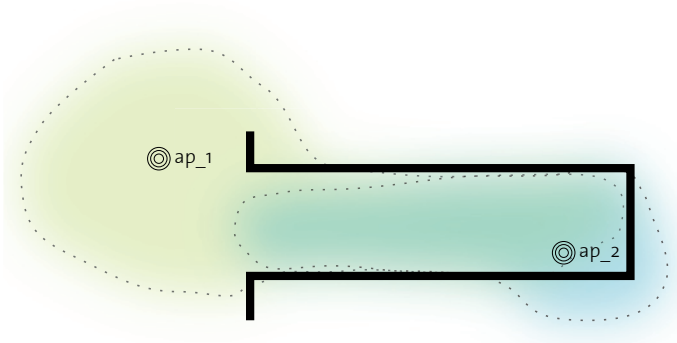


fig. 4.1.3 assumption of radio cloud (3rd situation - planview)

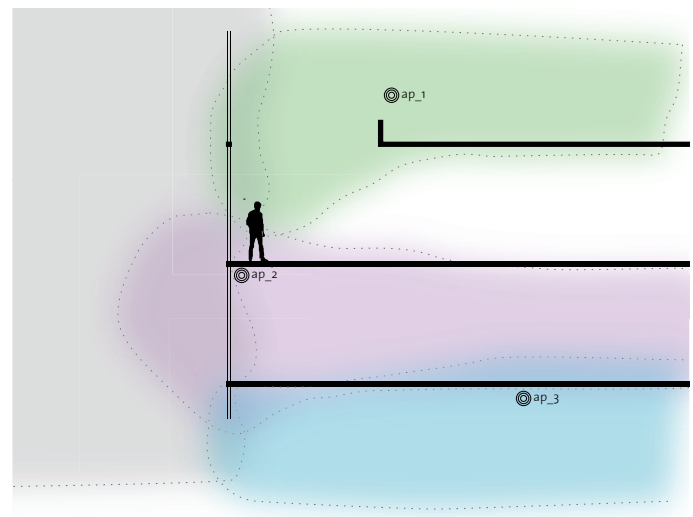


fig. 4.1.4 assumption of radio cloud (section)

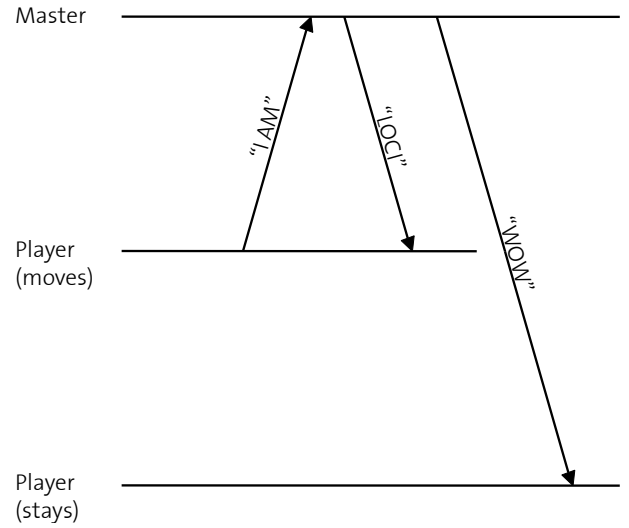
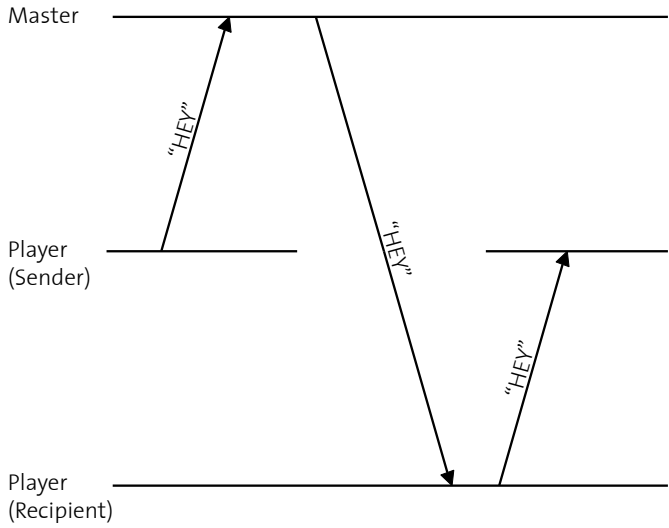


fig. 4.1.5 communication diagram (messaging & P2P)

00:0f:23:71:a9:e6	public	-47	00:0e:d7:48:60:77	public	-28	00:07:50:d6:03:02	public	-25	00:0d:65:9b:b5:88	public	-51	00:0d:65:9b:b5:bd	public	-46	00:30:65:15:fe:09	braunkohleNET	-60
00:0f:23:71:a9:e6	public	-35	00:0f:f8:58:0d:01	public	-30	00:11:24:23:e4:6b	MENZETH	-25	00:07:50:d5:f5:d5	public	-29	00:0d:29:fo:bo:a1	public	-25	00:0d:93:7e:33:47	eisenerzNET	-49
00:0d:65:9b:b5:48	public	-39	00:0f:f8:58:0d:c1	public	-24	00:0d:65:9b:b5:bd	public	-21	00:07:50:d6:03:02	public	-40	00:07:50:d5:f5:c6	public	-26	00:07:50:d6:03:e0	public	-32
00:0d:65:9b:b5:d3	public	-20	00:07:50:d5:f5:d5	public	-29	00:0f:23:71:a9:e1	public	-30	00:0f:23:71:a9:f2	public	-46	00:0d:65:9b:b5:97	public	-28	00:07:50:d6:00:c4	public	-29
00:0f:23:71:a9:f3	public	-25	00:0e:d7:48:60:8e	public	-44	00:0d:65:bb:6c:5c	public	-24	00:0f:23:71:a9:e1	public	-28	00:07:50:d6:03:c5	public	-32	00:07:50:d6:03:c5	public	-67
00:0f:23:71:a9:e6	public	-39	00:0f:f8:58:0d:c1	public	-25	00:0f:23:71:a9:f9	public	-26	00:0e:d7:48:60:70	public	-30	00:07:50:d6:00:fd	public	-30	00:30:65:15:fe:09	braunkohleNET	-55
00:0d:65:9b:b5:48	public	-32	00:0f:23:71:a9:e6	public	-35	00:07:50:d5:f5:c6	public	-29	00:07:50:d5:f5:c6	public	-46	00:0d:65:9b:b5:bd	public	-32	00:0d:93:7e:33:47	eisenerzNET	-49
00:0d:65:9b:b5:d3	public	-26	00:07:50:d5:f5:d5	public	-43	00:07:50:d6:03:02	public	-28	00:0d:65:9b:b5:88	public	-55	00:07:50:d5:f5:c6	public	-32	00:07:50:d6:03:e0	public	-29
00:0f:23:71:a9:f3	public	-13	00:0d:65:9b:b5:84	public	-15	00:0e:d7:48:60:8e	public	-28	00:07:50:d6:03:02	public	-28	00:07:50:d6:03:c5	public	-28	00:07:50:d6:00:c4	public	-35
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00:0d:65:9b:b5:48	public	-30	00:0e:d7:48:60:77	public	-21	00:0f:23:71:a9:e1	public	-45	00:0f:23:71:a9:e1	public	-44	00:0d:65:9b:b5:bd	public	-29	00:30:65:15:fe:09	braunkohleNET	-53
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00:0f:f8:58:0d:c1	public	-13	00:0f:f8:58:0d:c1	public	-15	00:0f:23:71:a9:f9	public	-30	00:0d:65:9b:b5:88	public	-45	00:0d:65:9b:b5:88	public	-26			
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00:0f:f8:58:0e:ac	public	-32	00:0f:f8:58:0d:01	public	-26	00:07:50:d6:03:02	public	-32	00:0f:23:71:a9:e1	public	-20	00:07:50:d6:03:c5	public	-35			
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00:07:50:d5:f5:d5	public	-26	00:07:50:d5:f5:d5	public	-37	00:0d:65:9b:b5:88	public	-43	00:07:50:d6:00:fd	public	-25	00:07:50:d6:03:c5	public	-53			
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00:0e:d7:48:60:77	public	-30	00:0f:f8:58:0d:01	public	-25	00:07:50:d6:03:02	public	-35	00:07:50:d5:f5:c6	public	-46	00:0d:93:7e:33:47	eisenerzNET	-35			
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00:0f:f8:58:0d:f1	public	-26	00:0e:d7:48:60:8e	public	-35	00:0f:23:71:a9:f2	public	-35	00:0d:65:9b:b5:bd	public	-30	00:0d:93:7e:33:47	eisenerzNET	-53			
00:0f:f8:58:0d:c1	public	-15	00:0f:23:71:a9:e1	public	-25	00:0d:65:9b:b5:bd	public	-30	00:07:50:d5:f5:c6	public	-32	00:07:50:d6:03:e0	public	-35			
00:07:50:d5:f5:d5	public	-30	00:07:50:d5:f5:d5	public	-35	00:0f:23:71:a9:e1	public	-25	00:07:50:d5:f5:d5	public	-28	00:07:50:d6:00:c4	public	-30			
00:0e:d7:48:60:8e	public	-43	00:0e:d7:48:60:8e	public	-37	00:07:50:d5:f5:c6	public	-45	00:07:50:d6:00:fd	public	-42	00:07:50:d6:03:c5	public	-67			

access point scan (values for fig.4.2.2)

4.2 Researching the limits

Our extensive signal strength measurements have shown that in an indoor environment, a lot of factors affect the received signal strength (e.g. walls with different materials, moving people and reflecting elements, cf. fig. 4.2.1 + fig 4.2.3)

The charts and the list of signal strengths indicate how the reception changes by moving at slow speed through building parts. Some access points are stronger than others (for example an outdoor access point - 00:07:50:d5:f5:c6, cf. fig 4.2.2)

We have found that this is the reason why an exact positioning with a triangulation of all access points is impossible.

As a solution for locating a client at a game locus, we have defined the condition to receive the signal of two or more specified access points (fig. 4.1.1).

Further on, we discovered that different wireless LAN adapters receive different strengths of radio signals. Not-so-recent hardware drivers are not even capable of measuring the signal strength.

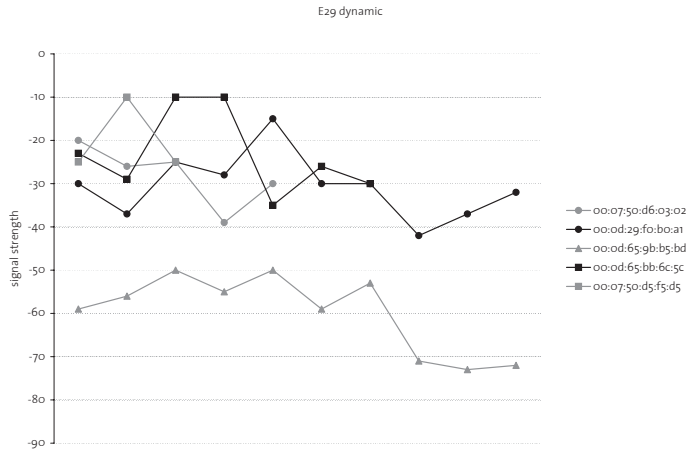


fig. 4.2.1 dynamic measurement around room hil e29

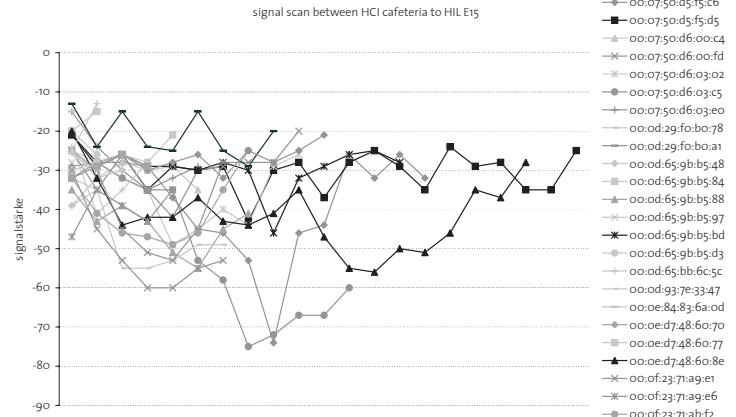


fig. 4.2.2 dynamic measurement between hci cafeteria and hil e15

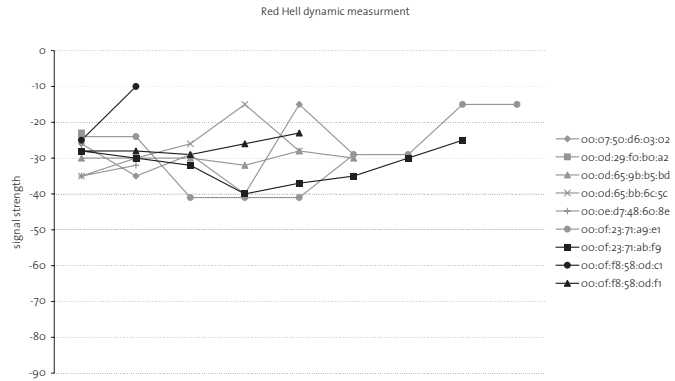


fig. 4.2.3 dynamic measurement around hil e65

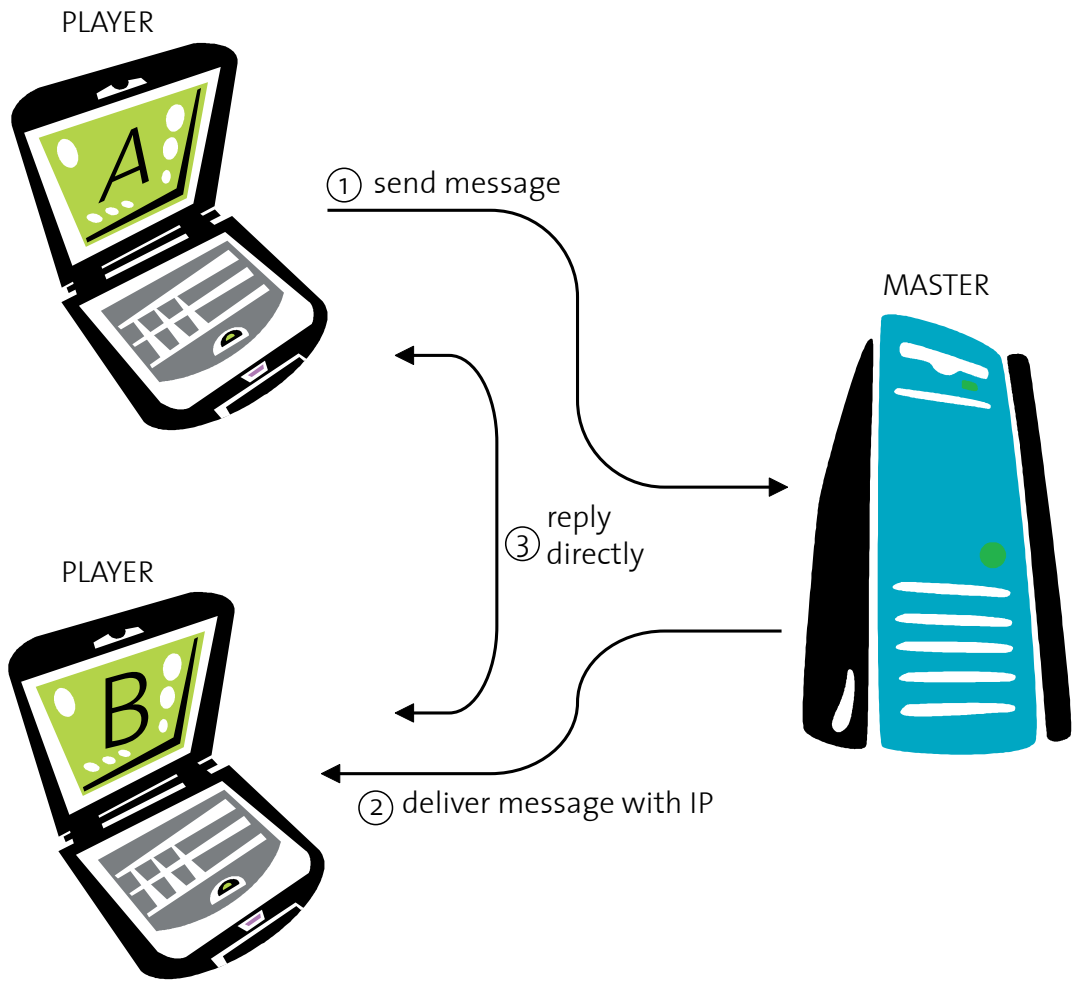


fig. 4.3.1 diagram messaging

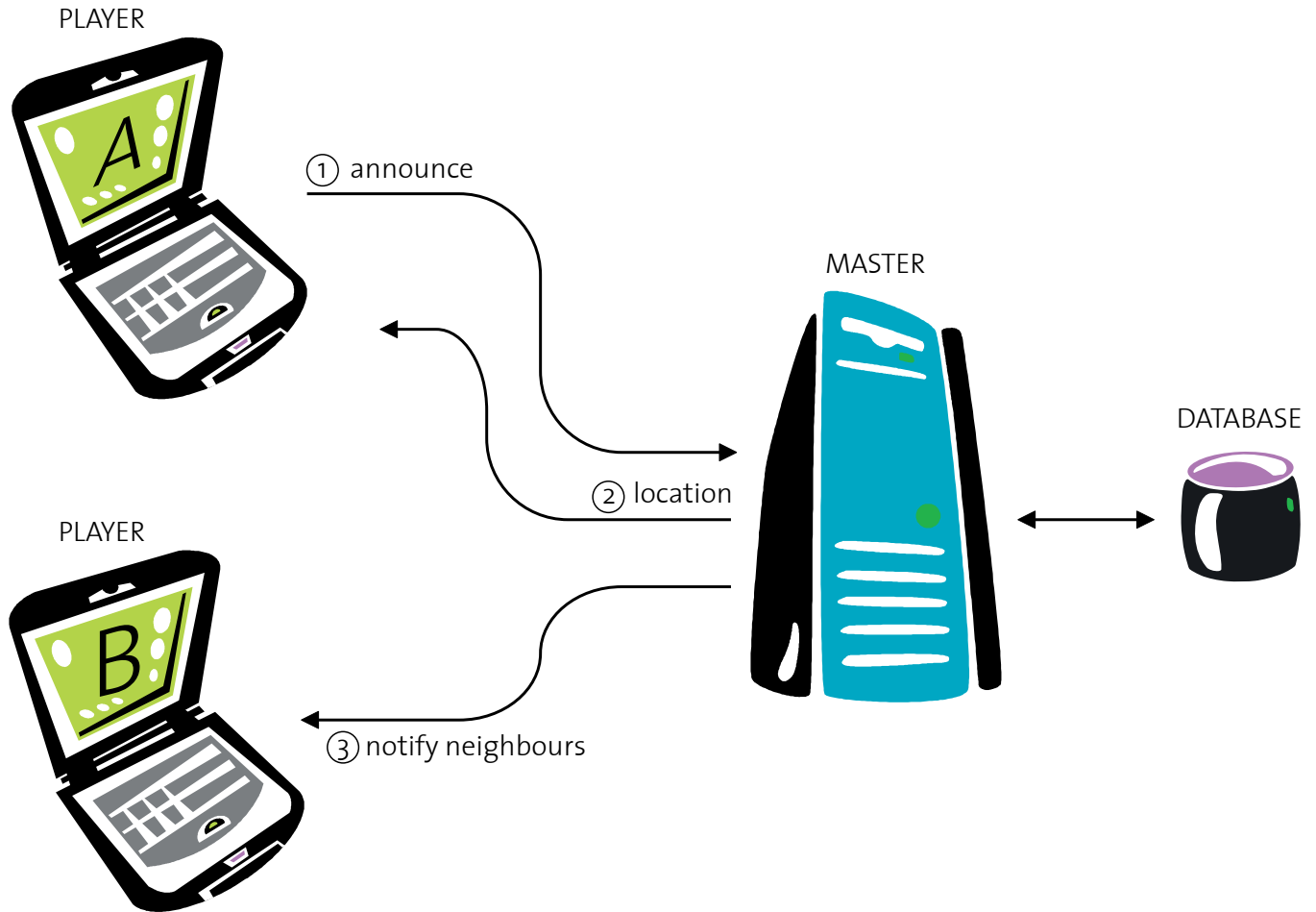
4.3 Software architecture

The ETHGame - as a highly mobile application with heavy message traffic - has to be implemented with a simple and fast protocol.

Each player installs and starts a client application called PLAYER. After that, PLAYER connects to the server thread of MASTER, sends the current available access points, and receives the associated Locus with its neighbors. Additionally, the MASTER notifies the other PLAYER clients that there is a new neighbor.

Potential players will have many different hardware and software configurations. Therefore, the multi platform environment Java seems the most plausible solution to provide support for most players. Further on, Java offers an easy to use network library and an access layer to locate wireless access points.

Messaging is the core function of the ETHGame. Since the number of concurrent players will be high (5000+), the network load will just scale with an optimal way



of communication: ETHGame will involve a P2P messaging tool. Figure 4.3.1 displays how the messaging between two players (clients) works: Firstly, PLAYER A sends a message with the recipient's name to the MASTER. The MASTER delivers the message to the corresponding PLAYER B, and B can answer to A directly - peer to peer.

Questions	
QuestionID	int
Description	varchar(400)
Type	int
Location	int
Points	int
Difficulty	int
Data	byte

Choices	
<i>QuestionID</i>	int
ChoiceID	int
Description	varchar(200)
Correct	bit
Points	int

← 1 : n

Players	
PlayerID	int
Username	varchar(20)
Password	varchar(20)
Legi	char(10)

LociPlayers	
<i>LociID</i>	int
<i>PlayerID</i>	int

← 1 : n

↑ 1 : 1

PlayerStates	
<i>PlayerID</i>	int
<i>CurrentIP</i>	varchar(15)
Points	longint
Mana	int
Avatar	int

Locis	
<i>LociID</i>	int
Description	varchar(20)
Type	int
Level	int

↓ 1 : n

AccessPoints	
AccessPointID	int
MAC-Address	char(17)
Latitude	float
Longitude	float
Altitude	float

LociAccessPoints	
<i>LociID</i>	int
<i>AccessPointID</i>	int

← 1 : n

↑ 1 : n

4.4 Database

The database is planned as follows:

Players:

Static information about the players is stored in this database table. Each entry is created once upon registering for the game. It will not be possible to change the entries.

PlayerStates:

This table stores game-relevant information about the players. Additionally to the points/avatars and mana, each player has his or her own IP address.

AccessPoints:

An Access-Point (ap) is a physical WLAN antenna with its own unique MAC-Address. The geographical coordinates of the antenna position is stored in the table, as well.



fig. 4.4.2: gameplay episode

Loci:

A Locus is defined as a set of Access-Points and is therefore not physical, but virtual. It has its own description and its own level and type.

Questions:

All questions will be saved in this table. The location of a question can be either a Locus, or a player. A question can also be a class which defines an application. I.e. a question could also be a small drawing-task. This information can be stored in the column 'data'.

Choices:

The possible answers for a question can be associated with multiple/varying point scores. Multiple answers are possible, too.

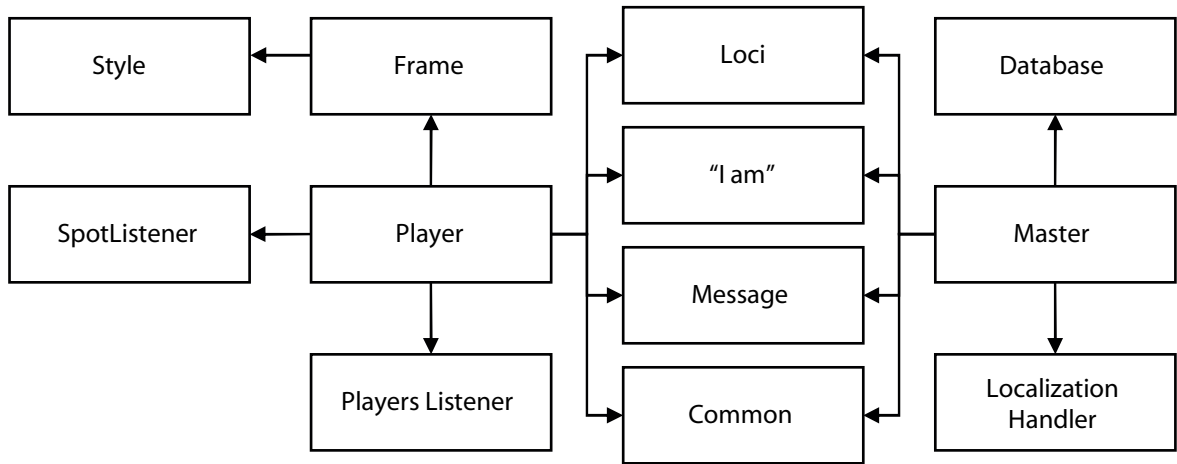


fig. 4.5.1 simplified uml diagram

4.5 Implementation

Java, an object oriented programming language, offers the possibility of heavy code reuse. To illustrate the modeling of the two applications PLAYER and MASTER, we are using the UML notation. (fig. 4.5.1)

Additionally, the program logic and the data have been separated . The class 'Database' plays the role of a wrapper between the relational database (mySQL) and the GameMASTER program (Java).



fig 4.5.2 possible scenario using a tablet pc

5. Marketing plan

5.1 Publicity campaign

All ETH Zurich users in possession of a valid n.ethz account represent our campaign's target group. This group encompasses over 18`000 students, teachers, as well as staff. Potential players are distributed across a multitude of locations all over Zurich, amounting to ca. 35`000 m2.

The entirety of our target group takes advantage of the ETHZ network in one way or another, logging in either from their mobile notebooks or stationary computers. Therefore, n.ethz users also have the possibility to join the ETHGame.

Stages	Actions
Kindle interest (1month before start)	Eyecatchers with few informations by posters, flyers,pop-ups, desktop background on public workstations / give currency to rumours,
Prelude (2 weeks before start)	Informal aperos, official announcement of the game, concrete advertising
Intensive advertising (2 weeks before start)	Posters, flyers,pop-ups, desktop background on public workstations
Beginning of the game	Party, big fire, celebrate the beginning of the game

fig. 5.2.1: Schedule of advertising phases

5.2 Advertising concept

Our advertising concept mirrors one core idea of the ETHGame concept, namely, to animate physical spaces with knowledge, and thus to give these loci a character of their own with which players may interact. Just like the different loci address potential players with a variety of behaviors, campaign means such as posters, or flyers will employ different, visual and textual, yet always comical tonalities. We will split the advertising campaign into several phases with different levels of concreteness.

	request	rewards/partnership
Students Council (VSETH)	publicity	t.b.a.
Societies of all Departments (Architektura, UFO, AIV,...)	publicity in own departments	t.b.a.
ETH-intern services and operations:		
Employment Agency ETH	agency of man power	t.b.a.
Poly Book Store	t.b.a.	vouchers
SAB	t.b.a.	vouchers
ETH Life	publicity on webpage	t.b.a.
Forschung Life	place to go for planing of science and event campaign	t.b.a.
VPP	t.b.a.	vantaged printing by courtesy of a high score in the game
MyETH	publicity on webpage	t.b.a.
Trans	article	t.b.a.
eDoz	t.b.a.	interest in chat module possible
ETH-extern connected services and operations:		
SV-Service	t.b.a.	vouchers
Neptun	t.b.a.	interest in information service program possible

fig. 6.1.1: schedule of ETHZ related partnerships

6. Public relations plan

6.1 ETH Network

Many institutions within the ETH Zurich immediately relate to the ETHGame concept and could be included in its development and operation. We plan to approach the institutions mentioned in the table on the left page concerning their interest in advertising, sponsoring, or allocating vouchers. Of course, supporting a large scale application such as ETHGame benefits our partners because they gain access to a mass of clients, and/or users.

type of company	prospects
financial companies	UBS,CS, Migros Bank, ZKB, Coop Bank,
technology developers	Apple, Microsoft, Sony, Nintendo, HP, Canon, ...
software developers	Apple, Microsoft, Cisco Systems, Nemetschek, ...
cultural sponsors	Migros Kulturprozent, Pro Helvetia Kulturstiftung, ...
vendors of technology and software	Data Quest, Computer Take Away, Vobis, Media Markt, Interdiscount
lifestyle	Marlboro, Parisienne, Diesel, M-Budget, Nike, Addidas,...
communication	NOKIA, Sunrise, Swisscom, Cablecom,

fig. 6.2.1: list of possible sponsoring partners

6.2 Sponsoring

Developers and vendors of hardware and/or software products may be interested in sponsoring the ETHGame, simply because we use their products or services within the ETHGame. The artistic aspects of the project should also attract cultural sponsorship. In addition, vendors of life style products as well as consumer brands may be interested in attracting a large number of potential clients.

architecture of games	pervasive games	serious games
e.g. space-time history of video games, computer game space typology, overlaps between game design and architectural design	games as architectural and urbanistic interventions: sentient buildings, interactive/feel space, games and game design as teaching tools	games as practical planning tools in architecture and urban design practice

fig. 7.1.1: relations between game and architecture.

7. Research scope and sustainability

7.1 Mapping Games and Architecture

(Pervasive) games and architecture relate in a number of ways, cf. fig. 7.1.1. In this context, the ETHGame concept aims at providing a large scale pervasive game-to-teach. As an advanced example of the mediation of space, digital media and massively multiplayer games, it contributes a milestone to the worldwide movement of combining game design with sentient architecture.

Serious Fun: Game Design as Pervasive CAAD Prototyping and Research Method for ETH Zurich

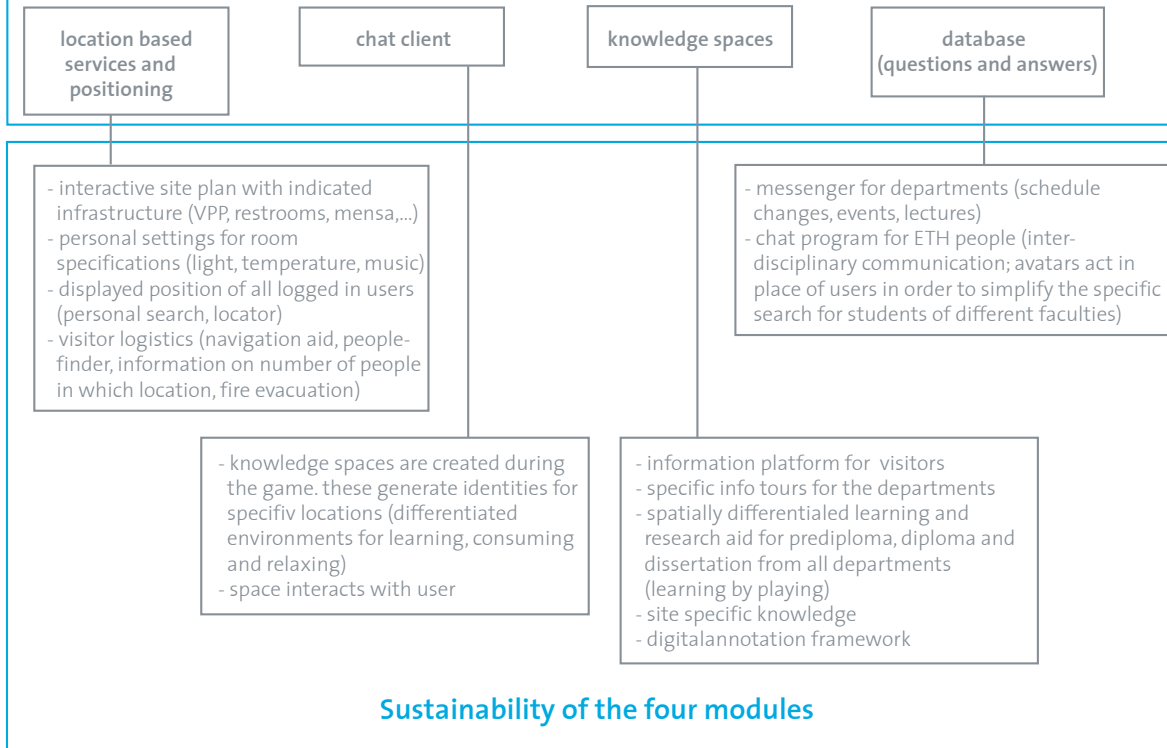


fig. 7.1.2: Sustainability of the ETHGame for other academic fields.

7.2. Findings from the design studio

The most important aspect of ETHGame manifests in the mediation of knowledge in a playful fashion next to establishing cooperation between members of the ETH community regardless of their factual background. The four research modules - cf. fig. 7.2.1 - are used to create social spaces, as well as communication channels and supervision for network based learning. Many researchers have found that students might not accept concepts that are merely based on virtual spaces, but also need face-to-face collaboration. To us, the ETHGame seems a feasible augmentation.

Because of the vast variety of activities at ETH Zurich, our approach is based on the possibilities of games to allow a minimum of physical contact between instructors and students for a successful learning. Further characteristics such as identity generation and time independent, yet space dependent learning represent positive side-effects of our research.

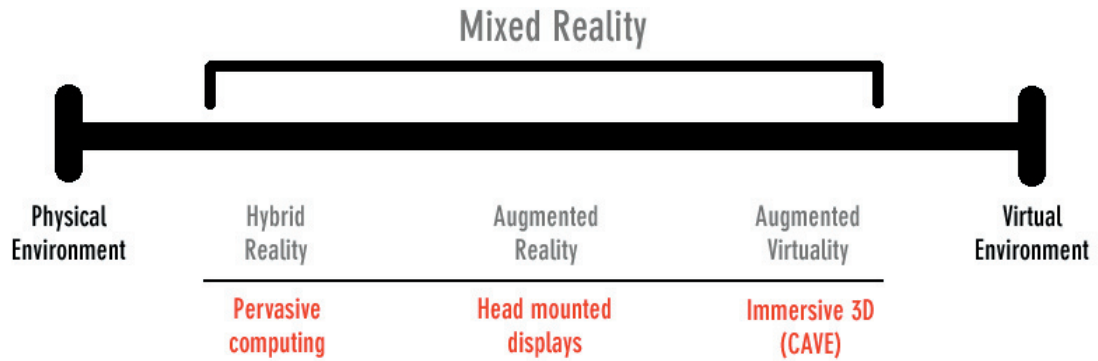


fig. 7.1.3: Simplified representation of a mixed reality continuum

ETHGame enables a basic approach in using the existing technical infrastructure at ETH Zurich and combining it within its entire building infrastructure. Information space fuses with reality and creates a mixed reality. Sensors are synchronising both of them. It is said, that ETH Zurich features the largest WLAN network within Europe - ETHGame applies this network in order to detect data concerning players, and in order to communicate digitised information.

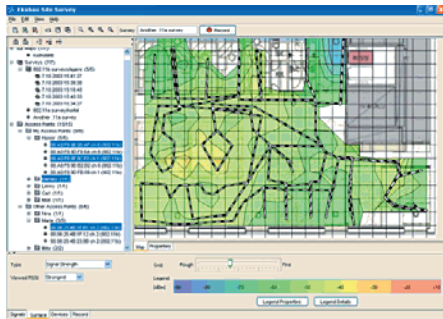
When playing the ETHGame, the player uses her personal mobile computer (e.g. a ETH-Neptun notebook). She or he discerns other players by the way of game figures (avatars) that are moving in a computer generated isometric environment. This view is a augmented representation of the physical surrounding. The interface informs about position and properties of the other players. The chat client allows players to communicate in real time. These techniques help to synchronize the attention of all participants and foster collaboration between them.

ETHGame offers the possibility for studying the transfers and overlaps between real and virtual space in an interdisciplinary way with thousands of users. In this context, we research both pervasive game design and novel forms of computer-aided learning (e-learning).

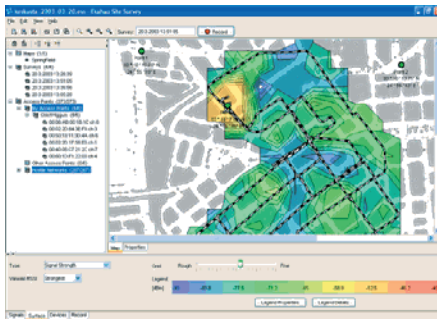
7.3. Sustainability

Because of its modular structure in technology, content, set-up and action, ETHGame is highly sustainable. Modules might be recycled by both ETH Zurich's internal services and researchers. The system as such is designed to be highly scalable.

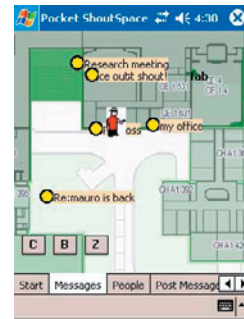
ETHGame is based on four modules especially created for ETHGame. Eventually, they still may be used for different purposes such as improving communication or navigating through the campus. It could be part of a service package for all ETH members facilitating their daily life at the ETH Zurich.



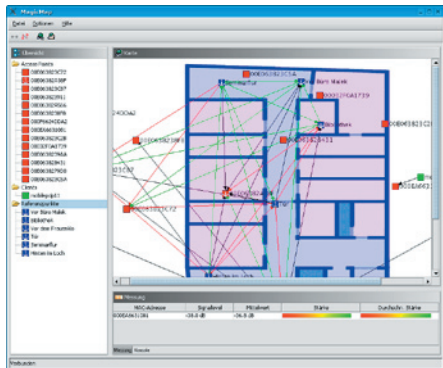
Map of Signal Strength. (Ekahau)



Outdoor view and signal strengths. (Ekahau)



Interface ShoutSpace, EPF Lausanne.



Interface MagicMap.



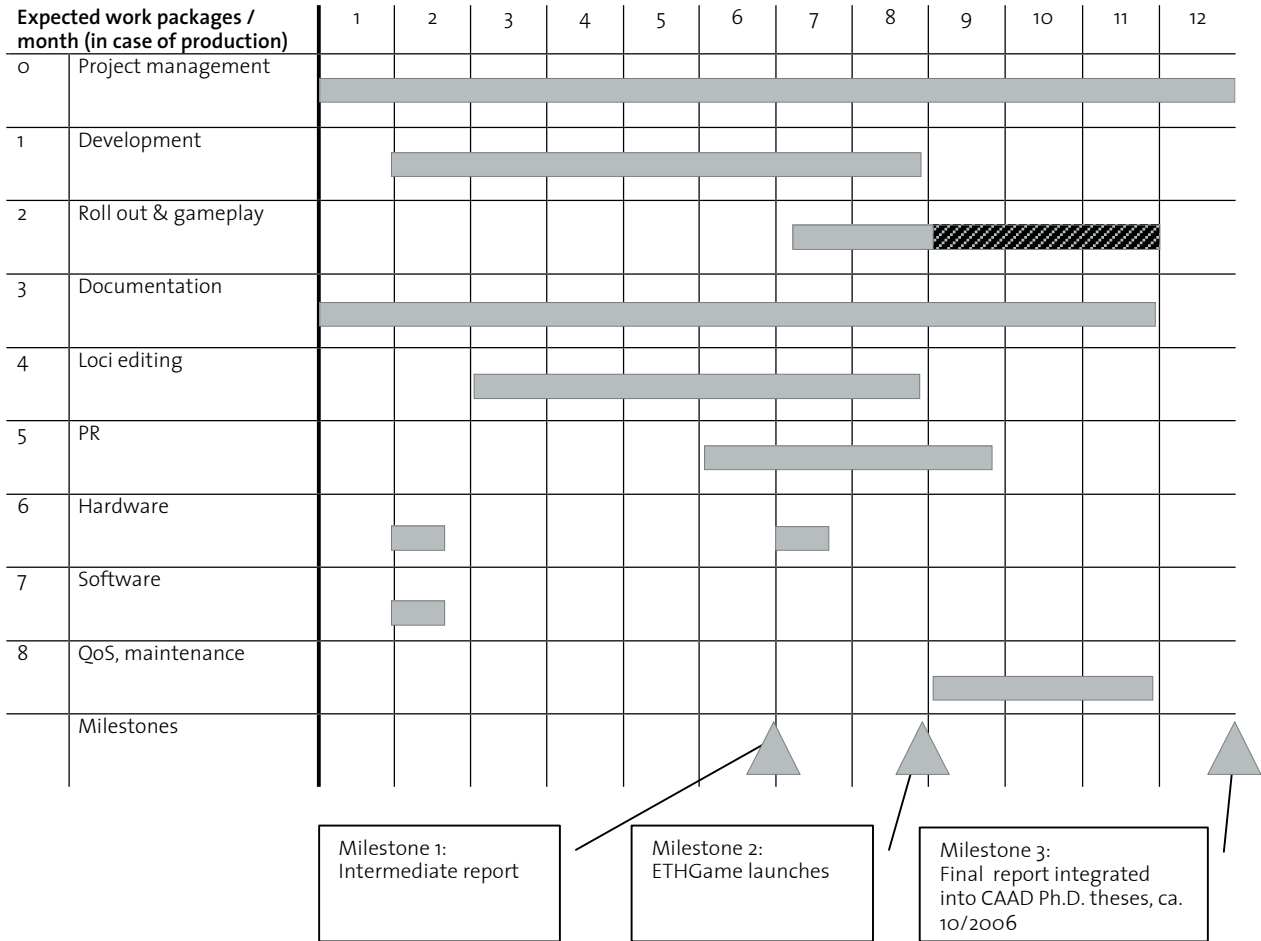
Laboratory for integrated building services at ETH Zurich, Chair of CAAD.



MIT Games-To-Teach.

7.4 Related research / products

- PlaceLab/MagicMap: A software providing low cost, easy to use device for location enhanced computing applications.
<http://placelab.org>
<http://www.informatik.hu-berlin.de/rok/MagicMap/>
- ShoutSpace: A geographical messaging system for the EPFL community as a segway to an ontology of spatial communication.
<http://craftsrv1.epfl.ch/research/shoutspace/>
- ekahau: A provider of software based Wi-Fi location technology, enabling location sensitive wireless applications.
<http://www.ekahau.com/>
- Building IP: digitally connected buildings and media technology
<http://www.building-ip.ethz.ch/>
- MIT Science Education - Augmented Games / Games-To-Teach Initiative: A number of pervasive games used for learning purposes, or to help teachers author their own games-to-teach.
<http://education.mit.edu>



8. Expected project schedule

		Full version CHF	Midi version CHF
Project management		CAAD	CAAD
Development costs			
	Backend	54000.00	45000.00
	Graphics / frontend	4000.00	3000.00
	Testing	4000.00	3000.00
	Audio	1500.00	1500.00
	Characters	4000.00	2000.00
Roll out		5000.00	4000.00
	Implementation Coordination with ETH parties		
Documentation		5000.00	4000.00
	Technical documentation Making of		
Loci editing		35200.00	26400.00
	Questions & multiple choice answers Loci research		
SUBTOTAL CHF		112700.00	88900.00

9. Budget proposal

		Full version CHF	Midi version CHF
PR		4000.00	3000.00
	Campaign planning, coordination Drafting of campaign means Campaign production		
Hardware		10000.00	8000.00
	Server plus redundancy Testing; portable clients WLAN sniffer		
Software		5000.00	3000.00
	Development enviroments Licenses		
QoS, maintenance		5000.00	4000.00
	Hotline Patches		
TOTAL CHF		136700.00	106900.00

10. CD-ROM

11. Project participants

ETH Zurich
Departement Architecture
Chair of CAAD
Prof. Dr. Ludger Hovestadt

Teaching

Steffen P. Walz Odilo Schoch Mathias Ochsendorf Torsten Spindler

Students

Marcel Carozzi Marc Diener Carlo Fumarola
Michael Kren Margarita Landau Laura Lienert Moritz Marti
Ilario Musio Silvan Oesterle Matthias Sala
Niklaus Schädlin Daniel Wahl

YOU ARE HERE