



Short path puzzle in the light of GpsGame enabled scenario.

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Mobile Application.

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## Abstract

This paper is related to the subject taught at Ostfold University College at Master level named Mobile Application and I am going to develop GPS enabled mobile game in java with the name "Short path puzzle in the light of GpsGame enabled scenario." This is a multiplayer game in which player need a GPS enabled mobile phone with the installation of the game and further we need opponent's to play; the other player's also have the same equipment. And now they need a ground or open place where they want to play. The given ground is shown on the Mobile screen and the game generate a random virtual map on that ground on the screen of mobile phone now all players have the different starting and ending point of the game on the ground which are virtually generated on the mobile phone, now the players have to first set their positions according to their starting point, now the players have to run towards their ending point, the route followed by the all the players are equal in distance and their winning is on the bases of the first who reach at the destination point.

## Introduction

### Project title:

Short path puzzle in the light of GpsGame enabled scenario.

### Description of the project:

#### Facts of real existing game:

Short Path is a nice puzzle game which is available online to play in which you have to find the shortest route. But my proposed game is entire different from this game but I'd like to mention the name of this game because I am going to use this game's name in my project and also I got some idea from this game to develop my game. The following snapshot is of the game.



#### My proposed game:

Now my work is to make this game a GPS enabled Game as I already mentioned that I am going to do this task with modification and the other variation is that the current existing game is a single player and I am going to develop the multiplayer game to increase the fun factor and make it more socialize. I will consider this game for the both gender somehow fun factor is quite even, regardless of age and gender by Gunnar Misund et al [1].

In this game we need a ground or open place where the player's wants to play. That ground is shown on the Mobile screen and there is a random virtual map generated on that ground on the screen of mobile phone now all players have the different starting and ending point of the game on the ground which are virtually generated on the mobile phone, now the players have to first set their positions according to their starting point, now the players have to run towards their ending point, the route followed by the all the players are equal in distance and their winning is on the bases of the first who reach at the destination point.

The movement of the source is done by physically running on the ground through the GPS enabled mobile set pick by the source. [3]

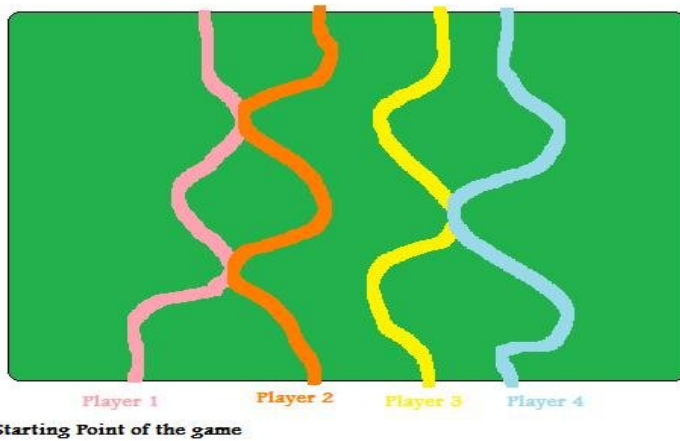
### **Game Plan:**

I am going to develop the five different level of this game. The difference between the levels is the complexity of the path which player has to follow.

### **Level 1: Simple paths:**

In the simple level 1 the virtual map generated on our ground is pretty much simple. Not exactly straight but somehow seems simple. The following low-fidelity prototype of the level 1 is following:

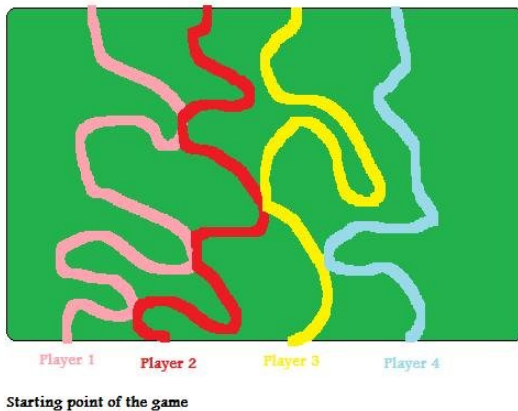
End points of the game



### Level 2 up to level 5:

In the level 2 the virtual map generated quite complex compare to level 1 and so on up to level 5. The main difference in different level is the how complex and tricky the path is to destination. The following low-fidelity prototype of the level 2 is following:

Ending point of the game



The virtual paths are generated with equal lengths. And the number of path generated on the basis of how many number of players are going to play. In my prototype I will show that four players are going to play so that why four paths generated in both level1 and the level 2.

## What I think that how much I will succeed:

I am pretty much sure that the Level 1 and Level 2 of the game I will successfully developed.

## Tool and Technology:

I am going to use the J2ME. There are two types of the screen display in the J2ME. Those are:

1. Low level display. (Pixel by pixel)
2. High level display. (Forms)

I am using Low level display or you can say canvas based painting.

## Canvas-Based Painting

Contrary to the Screen-based classes, Canvas does not rely on a component hierarchy and is not data-centric. Instead, it provides a drawing area that is accessed through graphics primitives that are implemented as methods of a helper class. Subsequent calls to these methods produce the contents of the display, so what is shown on screen is completely under control of the programmer. On the other hand high-level components hide their visual appearance from the developer. Canvas, on the other hand, provides free and immediate access to the display and input facilities.

I have implemented a game called ShortPath which implements the MIDlet class to show you how to use Canvas and its related classes. It is played as mentioned you before.

## What makes this an interesting project?

When you are going to make an already exist computer game into the physical game, you can't say it exactly the physical game or mergence of both I think this factor make this project interesting. Another factor that you are going to make such mobile game which includes physical movement of the person is also making this project interesting.



## What makes this a mobile application?

Using of the GPS technology and the display screen through which we can monitor that currently where we are and how far is our destination. And the track where the current player is and how actually other players far from the destination is moving we can done this by other devices but I think in order to done this by other devices the our mobile handset is the best option if they are such capable.

## What makes this a social application?

I think the multiplayer essence of the game make its social and also the crowd watching all this fun through the naked eye or through the desktop or web enabled screens I think these interaction make the application social.

## What capabilities of a mobile phone will be used in your project?

- GPS receiver.

## What similar projects/applications are already in existence?

- foxhunt. (In the reference of GPS enabled game)

## What potential pitfalls, challenges, threats and privacy issues can affect your project/application?

There are many concerns using the GPS technology because in this you are going to use the satellite based system to locate the position of the mobile. I think the integration of the game interface with the GPS interface is the major challenge of the game.

There is also accuracy constrain that how far the player not following the exact track or not, because the system response accurately as we require in this game. There are many checks I have to manage that there is flexibility at the width of the path so that if player little bit go outside the draw path then it's ok. If the player goes so much out from the track then the player must first have to come back to the path and then continue.

There is another issue that what happens when a call comes on mobile during the game. I propose the solution that this decision is done by the player before starting the game that he want to do that he want to receive the call during the game or not. If the player sets the setting yes its mean an important call expected during the game and of course that calls worth is more than game than we don't need to worry may be he quit the game or later he will continue this is his/her personal choice.

### HCI Aspect:

"Human-computer interaction (HCI) is the study of the interaction between people and computers" [4].

"Researchers in HCI provide innovations and empirical groundings, as well as theoretical perspectives, which are critical for a robust field. But the theoretical work is scattered across many sources, and practitioners are largely unaware of the range of theoretical work that has been done" [5].

"The phenomena underlying the relation between people and technology are complex and varied. Understanding these phenomena is a real challenge, especially given that they span perceptual, cognitive, social, organizational, commercial, and cultural factors" [5].

Somehow how I am going to manage HCI in my case.

### Look and feel:

My best try to make good look and feel. Using such color combination on screen so that which are easily visible in the shining sunny morning and also cloudy morning. It's a major challenge to select the appropriate color because mobile devices are such equipment whose display is must perfect in every whether and climate. That's why we have to very careful while there is a time to select color combination. And I try to don't make a screen so much massy, which cause the user confused.

### Sound and vibration:

The sound and vibration is used when the game starts and ends. And also alert the player if he/she is going on the wrong way.

### Recruiting and involving users:

#### Target User:

I am going to recruit not technical mobile user, means they don't have the background related to mobile development. And the age group is young people because this game is quite energetic and old age person not go for this

#### Feedback:

Take the feedback through the Performa/ questionnaires and interviews which contains the questions that how they feel about the concept of the game and how they feel comfortable with the interface and how further they think the game will be improved. And regarding different aspects of the game and also welcome to comments they wish to give.

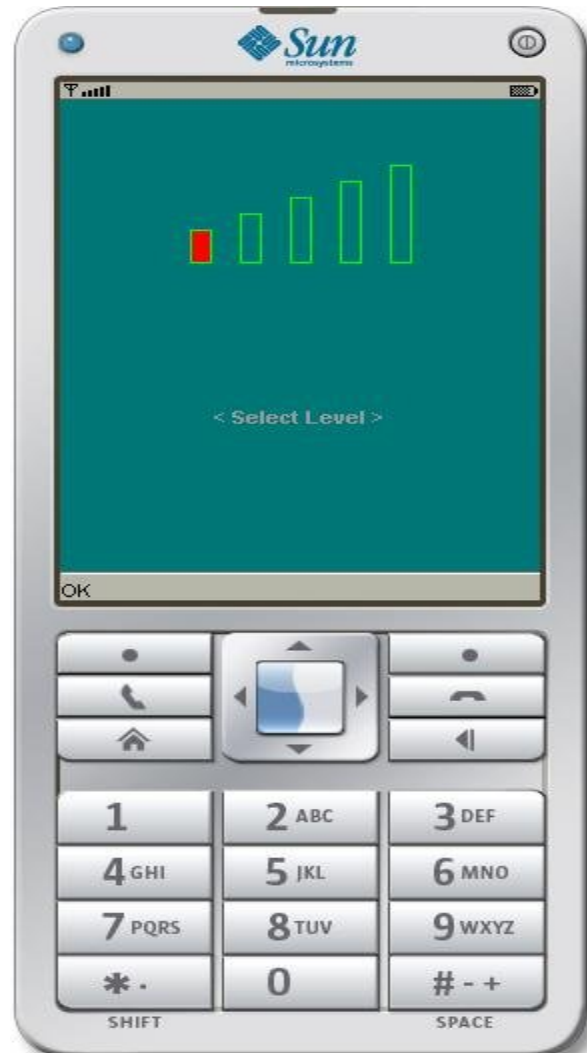
### Collaboration aspect:

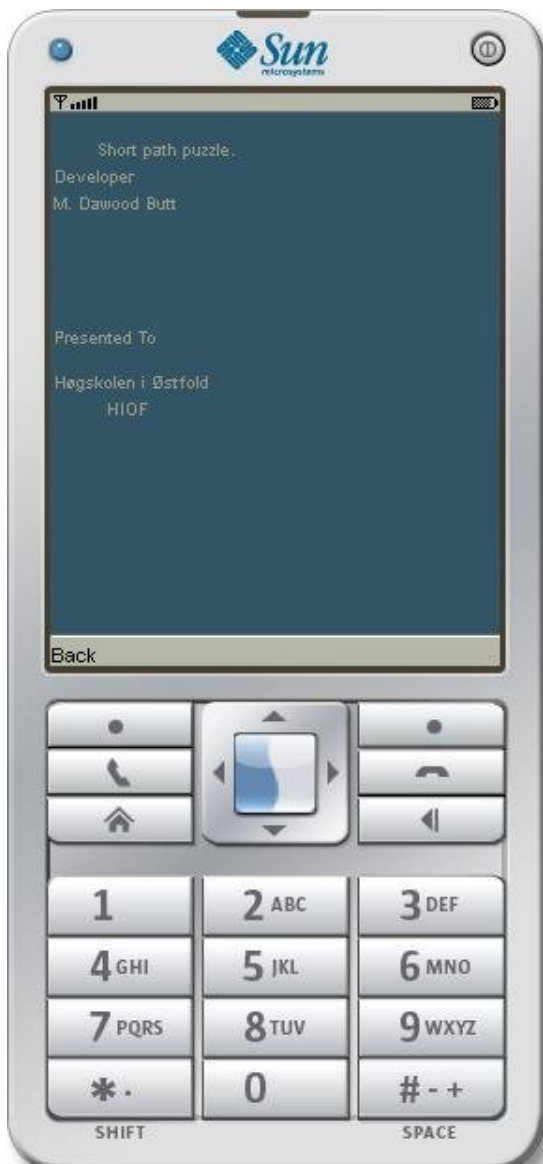
Collaboration techniques in software engineering have evolved to address our limitations. Software engineering collaboration has multiple goals spanning the entire lifecycle of development: [6]

- Establish the scope and capabilities of a project [7]
- Drive convergence towards a final architecture and Design [8]
- Manage dependencies among activities, artifacts, and organizations. [9]
- Reduce dependencies among engineers.
- Identify record and resolve errors.
- Record organizational memory.

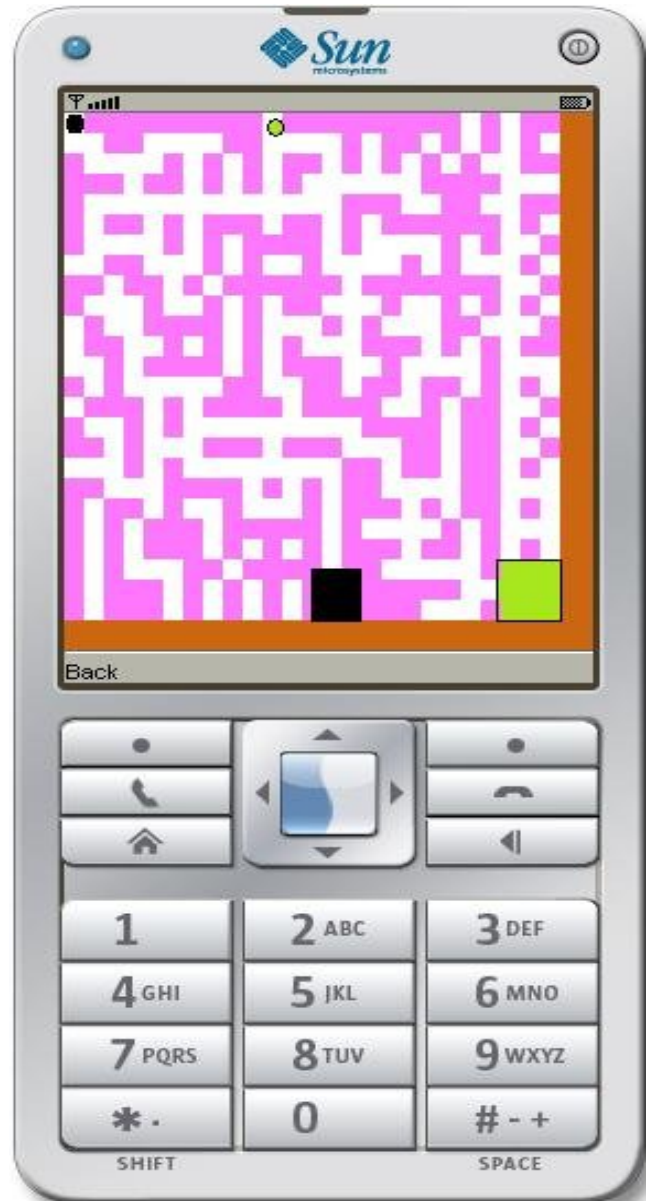
Planned Prototype:

Higher-Fidelity Prototype:





Høgskolen i Østfold.



The blue one you said the simple level 1. The virtual map generated on the ground and the two players are playing and the two players are represented by the blue and red circle in the level one and the both players destination is black and red square boxes respectively. Who reach the destination first that is the winner. Obvious the path is the virtual. If the user goes out of the actual path then the red bar shown on the screen as shown in level 1 prototype near the red ball (which represent the player) that he/she is going out of the original track and also the vibrator of the mobile is on to alert the player that he/she is going in the wrong direction.

### **Planned Evaluation:**

Take the feedback through the Performa which contains the questions that how they feel about the concept of the game and how they feel comfortable with the interface and how further they think the game will be improved. And regarding different aspects of the game and also welcome to comments they wish to give.

### **Concluding remarks:**

I pretty much dam sure that the game is successfully developed. If due to the shortest of time I am unable to developed fully workable game then I will go to evaluate the prototypes of the game which I developed in initial stages and evaluate that prototype of the game and take the feedbacks from the target users.



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