

Guess Who?

A smartphone version of a kids game

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Abstract—In the last decades mobile phones have become not only an instrument for make calls or send messages, but even a great instruments for games, relations and other every-day stuff. Mobile applications, especially games, are nowadays part of the life of every smartphone user, and are slowly substituting old table games with a mobile version that gives the possibility to play not only with people in the same room, but event at the other side of the world. To start moving in this direction, we propose a smartphone version of the box game “Guess Who?” by Hasbro Games.

I. INTRODUCTION

For every person, the childhood is remembered especially for what we can call “box games”, games played on a table with multiple players, usually stored in a box with the playground, cards and so on. In the last decade, what have seen an increment of the number of smartphone distributed in the world, event to the younger generations that always first has the first contact with a mobile device. The result of this process is that young guys start early to stop playing box games, preferring smartphones, computer and other devices to games with other guys. This could be a big problem for the next generation, causing problems even in interpersonal skills or loss of the reality.

What we do is to insert inside the unstoppable process of smartphone distribution even to young guys, an old style game that can be defined as “in step with the times”, working on a new different and more electronic environment.

A. Game Description

The game of “Guess Who?” Is very simple and is mostly based on the spirit of observation of the players. In fact, it has as main purpose the exclusion of the characters in the game based on questions about physical characteristics, accessories, etc.. the opponent. The game is played with a number of players equal to two. With the original game, the game begins when the two players have chosen a random card from the deck among those of the characters.

Then the two players are beginning to ask questions in order to exclude most people possible with the minimum number of questions in order to identify as quickly as possible to the character portrayed in the paper that the opponent has drawn from the deck. At each turn the player who asked the

question cannot make another one until it receives the answer from the opponent, and answered to the question made by the other player.

The first player to guess is the winner. In the case in which a player gives the wrong answer to the game, he automatically loses the game.

The game was made to try to comply as closely as possible to the original game. Of course, some minor changes were inevitable.

The main change that was necessary is to establish a connection between two devices in order to allow it to carry the game as it is no longer to have a real poker table, but virtualized. In this way, players can also be found a few meters away. The connection choose is Bluetooth.

In this case the first operation that is performed when the two players want to start the game is the creation of the connection. By clicking on both “New Game”, the application tries to activate the Bluetooth and then gives the possibility to be discoverable or to search for a player.

Once the connection has started, the game continues in the classic manner provided by the game itself except for the settlement of claims. To ensure that the basic rules of the game are respected, that is to be asked only questions that can be answered with “yes” or “no” answers, questions are being semi-composed.

In this way the player will simply choose a physical feature, accessory, etc.. and the question is formulated and sent automatically to the device opponent.

B. Method of game and players

The game does not provide other conditions than the classic board game.

The number of players expected for the game are two.

II. DESIGN AND IMPLEMENTATION

A. General Architecture

The application has been developed using Android 2.2. This choice has been made because that version is the most

supported version by now, and because our target wants to be wide as much as possible.

The general architecture of the application is composed by:

- *UI Manager*. It manages user interaction on the screen, providing method for selection of faces, question composer etc.
- *Control Manager*. It manages the different turns of the game and the timing of it.
- *Network Manager*. It manages connection with other phones. The basic idea is that it has to be network independent, and provide the same feature with every type of connection. At this time only Bluetooth is supported, but it could be extended with WiFi or UMTS/GPRS support. It takes care of the connection set-up, message exchanges and eventually connection-lost.

Thread synchronization and other general stuff are made by the main thread that is the central point of the game that controls all other part of the application.

What we have decide for the application, is that it is not the application that gives the timing of the game, but are the two players that manage the timing. This means, for example, that when a user makes a question to the other one, the one that receives the question will not receive immediately a message popping-up that shows the question, but only a button that becomes enabled, saying that there is a new question to answer. This avoid annoyance to the user, for example we avoid the situation where one user is eliminating some faces, and a pop-up comes out for the question of the opponent, probably causing to the player the loss of the last question he has made and the answer received.

B. Bluetooth Connection

In this section we are going to focus on the Bluetooth connection management, first of all describing the protocol in general, and after giving some implementation details.

First of all, our choice for Bluetooth has been made thinking about the contest where our application has been developed. In Italy, free WiFi connection is not very diffused, and it can be very expensive. For this reason, Bluetooth is the only choice to give to the user a free way to play with friends.

The communication protocol developed can be divided into two different phases:

1. A handshake phase
2. A communication phase

In the handshake phase, we have two different devices that want to connect with each other. What is necessary is that Bluetooth is activated for both devices, otherwise, obviously the game will not start. To start a communication, one device has to become the server, and start to wait for an incoming connection, and the other one has to become a client, looking for a server. When the two devices discover each other, they try to complete a connection and get an `InputStream` and `OutputStream` with which get or send packages.

For our purpose, every device send, in every situation, only strings. This simplifies too much the management of the different phases of the game, but on the other side we cannot provide multiple language support, and gives the possibility to use at the same time different languages. At this time, only Italian is implemented.

During the different phases of the game, the `BluetoothConnectionManager` is responsible to send or receive messages. Due to the phase-organization of the game, when a device receives a message from the other one, is able to understand what that message means, in agreement with the fact that the UI of the game will never stop what the user is doing, as described before.

It is possible that during games some problems happens and the connection can be lost. In this case, our `BluetoothConnectionManager` is able to understand if something happened, and stop the game avoiding any crash of the application. In future work, we explain an idea to better manage this situations.

III. FUTURE EXTENSION FOR THE GAME

The game that was made is in basic form in the sense that the minimum features have been implemented, but still allow the smooth running of the game. Future extensions can be implemented in order to embellish and complement the game and its options.

The possible development that could be done to improve the game are:

1. Implementation of Wi-Fi, or possible alternative, in supplement to the existing Bluetooth, in order to give the possibility to play against player not necessarily .
2. Allow the user to choose its face, and not only a random choice of it
3. Possibility to support Multilanguage, even with the possibility to allow two players to play with two different languages
4. Automatic save of the state of the game, in order to give the possibility to restart a game from last point when a connection error occurs.
5. Implementation of different difficulty levels. The main difference is the variability in the number of characters in the game.
6. Use of a memorization system, to save the names of the players, the number of victories and the time necessary to find the right character.
7. Various embellishments both graphical and sound to make an attractive interface that presents itself to the eyes of users.