



Report on the effectiveness of using Talking Tactile Tablets (T3) for the iSpectrum project

Author : Raychin Rachev, Researcher , F21 team, WP 9

Introduction to Talking Tactile Tablets:

The **Talking Tactile Tablet**, known also as “**TTT**” or “**T3**”, is a relatively expensive, rugged and simple computer peripheral device designed for use as a “viewer” for audio/tactile materials called overlay sheets. It consists of a computer touch screen connected to a PC via a USB cable.

The TTT gives users audio descriptions that correspond to whatever part of various 3D maps, diagrams or other illustrations that they touch.

When the user presses points on the braille or tactile sheet that is mounted on the **TTT**, his or her finger pressure is transmitted through the touch screen to the computer. The computer is able to provide audio feedback to the user, as a confirmation of a correct or incorrect answer pressed on the braille sheet or for identifying graphic details on the tactile sheets.

Making overlay sheets for the Talking Tactile Tablet is relatively complicated. Once a map or diagram is designed the file is converted into DXF format. The creation includes records of audio files – voice mainly, other sounds up to 10 layers per overlay. The creator should be familiar with the specific software environment, with the methodological requirements . After the printing on a so called swell paper, expensive one, the next step in the technological procedure is to burn this swell paper by a special heater . This way you receive the 3D effect .

Includes: USB Cable, Starter Software Bundle and Product Manual.

Specifications: Dimensions = 15"L x 12"W x 1.5"D Weight = 6.5 lbs.=2.94 kg

Requires: PC with windows 98 or higher, or Intel Mac running Windows.



Introduction to trials and testings of iSpectrum game and TTT implementation:

During the first trial/testing in January 2012 at the Center for Social Rehabilitation and Integration of people with autism in Sofia, Bulgaria. There were testers (young adults) who liked to hear some of the texts used in iSpectrum online game. These were longer texts with complex compound sentences. There were also moments when the testers were obviously bored. The results, conclusions and recommendations about the game development could be found in the relevant report.

Initial expectations of Talking Tactile Tablet implementations:

1. This know how is transferred by F21 from TrAHVIIT (TrAHVIIT– UK/09/LLP-LdV/TOI-163_209) project. It occurred to be a successful in making first steps of T3s in Bulgaria, Turkey. That is why this experiment with T3 implementation was included in iSpectrum project proposal.
2. Some of the reactions of the testers during the first trial in Bulgaria in January, 2012 inspired us to prepare this parallel way of game information perception. Making different variant in order to try to find the best approach to the specific needs of people with autism

F21 preparation work

T3 is quite unknown technology in Bulgaria. The only devices in Bulgaria are thanks to TrAHVVIT project. The number of persons who are able to create overlays is limited to two participants in the mention above project who passed successfully the relevant course in the Royal College of blind, Hereford, UK. The main reason is that the price of the tablet together with the license is 4 times than the average salary in Bulgaria and 10-12 times more expensive than the social pensions provided to people with disabilities in Bulgaria.

After discussions among the members of F21 team which scenes are most important and suitable for T3 implementation Iliya Kardzhanov prepared 75 screenshots. These screenshots were related to almost 25 scenes chosen from all three game environments, distributed proportionally to the different (5) game levels.



Ralitsa Racheva has launched the creation of 75 overlays for T3 dedicated to ease the playing of iSpectrum game using the ready 75 screenshots. As Ralitsa explains in the dedicated extra video material F21 aimed to provide different variants of overlays for the young people with ASD. The overlays were 3D and flat, most of them were made according to the basic requirement of maximum simplicity, other were more complicated translating literally game scenes with more complicated environment and multichoice answers. Ralitsa defined the so called active zones and attached to them the texts in a bilingual format – English and Bulgarian. As it was explained above the T3 software supports up to 10 voice layers to each active zone. Ralitsa recorded the relevant texts both in English and Bulgarian and attached these files. Of course a lot changes have been made during the process of 75 overlays creation from the initial plan but result was a great illustration of iSpectrum game scenes supported by voice, texts and tactile feelings. Many of the overlays and brief explanations of their creation were video recorded.

Reactions of the testers to T3 implementation:

On 24th and 25th September again at the Center for Social Rehabilitation and Integration of people with autism in Sofia, Bulgaria an extra testing took place. This third trial was dedicated to T3 and 75 overlays testing. This testing as the previous two ones was also video recorded. The video is made by the same sub-contractor without additional payment.

12 testers, 9 young adults with ASD and 3 practitioners working at the centre divided into 3 groups has tried to reply scenes from iSpectrum game through 2 Talking Tactile Tablets and 75 overlays. An explanation of the technology and short demonstration were made in front of each group.

In the very beginning it occurred to be a big fun for them. Due to the additional two senses included – tactile and voice. After the first emotions a lot of questions aroused as well as requests for support and help. The online game variant was also on in parallel in order to make better comparison.

The replacing of the overlays in order to try another scene occurred to be a problem. The restart of T3 Reader also.

As it was expected the play with the support of T3 took much more time than the online playing.

Conclusions and recommendations :

1. All the testers iSpectrum game overlays (T3 implementation) were already familiar with the online game. It is a big obstacle to have really clear results of how useful are they. The situation in Bulgaria is that the only place where there are activities with persons with ASD over 18 y.o. is the Center for Social Rehabilitation and Integration of people with autism in Sofia. They have limited capacity to serve these young adults and hence no choice for F21 to make the final extra testing with new testers.
2. During the entire process of testings – three of them there were requests for more interactivity and sometimes for audio in parallel. This would ease playing the game significantly. The paper format, the complicated access to the content used by T3s is an obstacle which spends time, requires knowledge of additional technology and relevant skills. Still there is a need of using in parallel more senses but other variants of Tactile , talking technologies could be more successful. There is info about such new decisions but they are still at laboratory level. Probably the visually impaired people adopt themselves easier to T3s and overlays due to their predisposition to hearing information and the shortage of too many choices how to access information. The most successful tool – screen readers is completely based on the hearing sense.
3. It is reasonable to continue to look for other technologies for playing the game with the use in parallel of hearing and tactile senses. A logical step in this direction could be the option to have voice recordings of all dialogs and instructions which could be switched on/off by the players with ASD and all other players .

28-29.09.2012

Plovdiv