Interactive Storytelling on HbbTV

Linear, yet interactive

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ABSTRACT

Since its launch in 2011, the storytelling potential of HbbTV has been used only rarely. This paper describes how the Multiplatform Application Toolkit (MPAT) enables content creators to create HbbTV applications with varying degrees of interactivity and linearity.

CCS CONCEPTS

• **Software and its engineering** → **Software notations and tools** → **Development frameworks and environments** →Integrated and visual development environments

KEYWORDS

HbbTV; storytelling; content editor; navigation models; Band Camp Berlin; MPAT

1 INTRODUCTION

When viewers on HbbTV devices press the red button on their TV Remote Control, they usually enter the HbbTV portal of the broadcaster. This typically offers three primary features: an EPG, a catch-up service and local/national news. All of these serve as information displays and are not well suited for storytelling purposes.

The potential of Hybrid TV is sometimes used for interaction, especially for gaming, but very rarely for storytelling purposes. This paper shares some insights how the MPAT project (mpat.eu) has tried to explore new forms of linearity and user engagement.

2 RELATED WORK

As the implementation of a tailored programme-related application for a specific TV series is generally costly, programme-specific content is rarely offered on HbbTV platforms outside of experimental proof-of-concept showcases and special event coverage. Providing HbbTV supplementation of regular broadcast offerings requires the availability of an HbbTV editing or creation tool, which allows the content creator to build an HbbTV application without requiring further implementation.

The best-known commercial HbbTV editors currently on the market are the SofiaDigital HbbTV[1] Authoring tool and the Ngine networks HbbTV CMS[2] . Both use a classical menu based navigation system, as described in the next section. While this is an efficient navigation method for information access, its suitability for storytelling purposes is limited. Both systems utilize navigation of a 'current selection' between multiple items as their navigation model. While various selection modes are supported (menu selection, selection from gallery, coverflow carousel), all assume a fixed horizontal or vertical grid structure of elements. Navigable elements are always visible on screen, potentially breaking the narrative flow and distracting the user.

To provide better support for narrative content, we added the Slide Flow and Event navigation models.

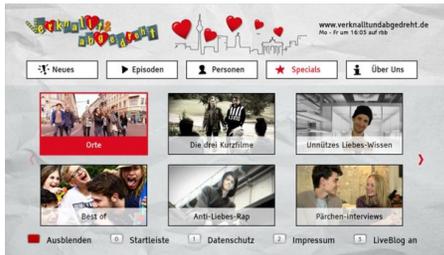## 3 MULTI-PLATFORM APPLICATION TOOLKIT

The development of the Multi-Platform Application Toolkit (MPAT) is primarily funded by an EU Horizon 2020 project, with eight partners from Dec 2015 - Nov 2017.

To exploit the familiarity of content creators with tools for web page creation, MPAT is based on the popular WordPress suite.

MPAT allows the content creator to select one of three different navigation models. Applications can contain a mix of different navigation models. For example, the Band Camp Berlin application, which aired on TV recently, uses classical menu-based navigation for the information sections, such as musician interviews and video catch-up selection, but Slide Flow navigation for the narrative section about the making of a music video.

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[1] https://sofiadigital.com/our-offering/tv-apps/sofia-backstage-author/
[2] http://www.hbbtvcms.com/

Traditional website-like design for an HbbTV application - taken from RBB's HbbTV app "verknallt & abgedreht" (Nov. 2014).

Timeline view for a nature documentary – design draft by Leadin Oy, Tampere, Finland, for MPAT (March 2016)

Classical Navigation

The classical navigation model matches the most common model currently used for navigation on HbbTV portal pages.

From a starting page, users access additional content by selecting an on-screen button with the cursor keys and pressing the enter key. The navigation essentially mimics a traditional web page with hyperlinks, replacing the mouse navigation with cursor navigation. Additional one-key shortcuts can be provided, enabling the user to access pages directly by pressing a numeric or colour key.

While this is the most common navigation model on TVs, it is not well-suited for digital storytelling, as the user can select content in an arbitrary order. As a result the content creator needs to ensure that every application page can stand on its own, and that the information presented within does not rely on that displayed on other pages.

Event-based Navigation

Event-based navigation allows the presentation of HbbTV content to be driven by the broadcast programme. The most common example for event-based navigation is the presentation of a red button over the current broadcast at the start of a TV programme or advert, to alert the viewer that additional information, e.g. in a documentary, is available. While the presentation is usually triggered by MPEG stream events, alternative channels. e.g. web sockets or application pull-requests, can be used as well.

While event-based navigation is well suited to provide additional information for a running broadcast programme, effective use of the feature requires a close interworking between the TV programme and the HbbTV application creators. As the HbbTV application is co-presented with the TV video, event-based navigation is best suited for small information inserts.
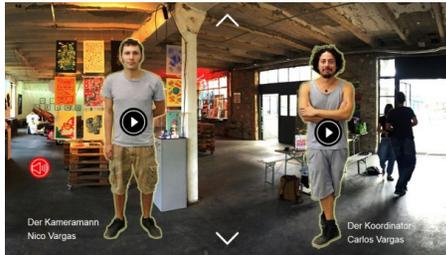
Slide Flow page with Audio and Video Hotspots - taken from the first RBB pilot "Band Camp Berlin" (Nov. 2016)

Slide Flow Navigation

The Slide Flow navigation model allows the content creator to design full-screen application pages, and specify the order in which they are presented. The user experience is similar to a slide-based computer presentation. While pages can contain selectable hotspots to provide additional content and information related to the currently presented page, navigation between the individual pages is sequential, allowing the content creator to build upon information presented on earlier pages and to establish a narrative flow.

This mode is particularly attractive for digital storytelling. While the user retains control about the time spent on the individual pages, allowing content consumption at the rate the user is comfortable with, the content creator retains control of the overall story flow and structure.

This is suited for fictional narratives as well as for documentary content. While this might be seen as just a "slide show", it is a format well suited for providing a narrative experience. It is popular with content creators, as it allows them to present their story with no distracting interface elements and to provide linear flow of information, with a beginning, middle and an end. Supplementary information can be provided where desired, but there is always a primary story flow, ensuring that the viewer will not get lost or distracted in story branches, but only see additional information in "optimizing interludes"[3]. We used this navigation mode to provide a 'making of" for the creation of the music video in the Band Camp Berlin application, which is described below.

IV. BAND CAMP BERLIN

Band Camp Berlin is a daily documentary soap broadcast on KI.KA, Germany's nationwide public broadcast service for children. It aired from 21 November to 22 December 2016 and will be on Air again from 18 June to 20 August on the same channel. Five young men and women, all of them 17 years old, were cast to form a band, compose their own music, create their own style and take their newly-formed band on stage. In addition to the 20 episodes that documented this evolution of a young band on TV, a website and an HbbTV application provided background information and narrative insights. With these extra applications young viewers could join the protagonists on their way to the big stage at the Shanghai Music Fair. The HbbTV application enabled three kinds of participation:

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[3] http://niemanstoryboard.org/stories/story-interrupted-why-we-need-new-approaches-to-digital-narrative/

Play along-interaction; taken from the first RBB pilot "Band Camp Berlin" (Nov. 2016)

1) In a traditional interview archive, videos introduced the individual musicians and their motivations.

2) A connected Slide Flow application guided the viewers through the process of producing their first music video, sequentially presenting the stages of the production day - from the choice of the song, the planning and selection of their outfits, to setting up the stage, to the actual shoot of the music clip (in both a time lapse and 360° video format) and, of course, the finished music video itself. This presentation format enabled an innovative mixture of images, videos and audio to be presented in a sequential flow, breaking up the traditional definition of linearity by adding interactive elements and slicing the otherwise linear story into digital chapters. While the flow of individual chapters remains linear, the viewer/user has the full liberty to decide how long to dwell on any of these pages or how deeply they want to delve into each individual chapter.

3) Viewers were invited to sing and play along with the song recorded at the music video shoot. Five different versions of the song were offered, each one with an instrument or the vocals missing. Through this very simple presentation, viewers at home could really take part in the music making and thus become a part of the programme.

V. EXPERIENCE, POTENTIAL AND LIMITS

While HbbTV is quite popular among adults, it seems difficult to engage adolescents in HbbTV applications. They are not looking for new ways to consume (multi-) screen entertainment; they have already established methods, largely based on smartphones as their prime choice for information and interaction. The big chance is in engaging children who a) have not yet learned that "tablets and smartphones are for interaction while TV is for passive viewing" (statement of a 13-year old interviewee at an rbb user test), but are still open to explore their own media landscape, and b) are guided by adults. The many ways of presenting content that the Multiplatform Application Toolkit (MPAT) allows, provides Content Creators and Broadcasters with new forms of both interactivity and storytelling. The three Navigation Models and the variety of forms of interaction and participation cater for a variety of heterogeneous interests across various age groups. MPAT can therefore be used to create applications for children, adolescents and adults alike.

VI. CONCLUSION AND FUTURE WORK

The Multiplatform Application Toolkit (MPAT) provides content creators of all types with an authoring tool for creating a variety of HbbTV apps.

The system will be made freely available to deploy and use by anyone under an appropriate open source license. Development of a number of new components and features continues. This will be coupled by rigorous evaluation and feedback generated by professionals and other potential users. A number of pilot services will imminently prove the applicability in a variety of contexts and for the benefit of TV viewers/HbbTV users. This includes forthcoming deployments in Germany, Italy and the UK.

Acknowledgement