Watching the Cars Go Round and Round: Designing for Active Spectating at Sport Events

Mattias Esbjörnsson[1], Barry Brown[2], Oskar Juhlin[1], Daniel Normark[1]
Mattias Östergren[1], Eric Laurier[3]

[1]Mobility, Interactive Institute
Stockholm
Sweden
firstname.lastname@tii.se

[2]Department of Computing Science
University of Glasgow
Glasgow, UK
barry@dcs.gla.ac.uk

[3]Institute of Geography
University of Edinburgh
Edinburgh, UK
eric.laurier@ed.ac.uk

ABSTRACT
Spectating at sport events is a common and popular leisure activity worldwide. Recently spectating has also become a topic of interest to CHI, particularly the design of technology for both performers and audiences. In this paper we describe an in-depth study of spectating, drawn from fieldwork of outdoor car rallies in the UK and Sweden. We describe three findings with relevance to design: the viewing paradox of spectating, active spectating and the role of sociability. We describe the MySplitTime prototype which address these issues while retaining the active sociable nature of the spectating experience.

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Spectating, mobile services, sports, ethnography, rally.

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Spectating presents new challenges to both HCI and design. In a number of new public technologies, users take a range of roles beyond straightforward single user interaction. Through experiments with games [1], performances and internet based experiments [7], spectating as a type of use has gained new attention– designing for those who observe, but do not have direct involvement in an event.

In this paper we discuss designing for spectating in sport. Presenting results from an ethnographic study of spectators at rally car racing events, we describe a prototype application that supports watching car rallies in a new way. Using our observations from behind the scenes, and with spectators, at six car rally events we also draw out the distinctive problems that spectators face with their experience of sport, and how we might enrich this experience. For sport spectators there is something of a 'viewers paradox': while being at the event gives a rich physical experience, there is often an inability to put the details observed into the broader context – such as what a particular lap means for the overall race, or what a particular game means for a whole competition. Moreover, the experience itself is often dominated by long periods of waiting, with the 'action' only taking a small part of the time spent watching. This can lead to considerable boredom amongst spectators. However, this time can be valuable since spectating is also a richly social experience. Events in sport are important not just in themselves but as 'resources for conversation' amongst groups – spectating is a venue for conversation and sociability.

We draw three design guidelines from our observations. First, much of the value of spectating comes from being 'close to the action'. Accordingly, technology should not distance observers from what they can see. Second, spectating technology should not simply push information at spectators but support an active engagement with the event. Lastly, we emphasize the importance of designing for sociability. Technologies should not simply monopolize spectators' attention, but fit into valuable existing social interactions. One current example of this is the use of digital cameras, where photographs can be shared during an event, with the photograph acting not only as a way of capturing the event, but as a talking point afterwards.

The paper starts by discussing related concepts which enhance the spectator experience, covers details of the fieldwork, design implications and finally describes the design of the MySplitTime prototype, and how it relates to the empirical findings.

RELATED WORK

Communication technologies have been used to follow and monitor races since as early as 1910 [3]. Within HCI there have been a number of attempts to increasing the audience commitment and enhance the spectator experience at sporting events. Most systems focus on enhancing the event by transmitting sensor-based information, providing overview for the audience. For example the Mäkitalo research centre introduced a system that provides supplementary information to basketball and ice hockey arena visitors' handheld

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computers [5]. This information covers game statistics, the players' heart rate, and replays of goals and penalty situations. Similarly the Situate system [2] monitors competitors through sensors. This project is focused on the Vasaloppet, a cross-country skiing race where 16 000 participants compete on a 90 km track. The system enables a spectator to follow a competitor of their choice tracking their location, altitude, speed, and pulse.

Furthermore, the Media Event Platform [6], provides spectators at field sport events with timely information through WAP, SMS, WWW and over public digital radio broadcasts. The information concerns results, penalties, retirements, entry lists, news, traffic information, etc. The system relies on retrieving information through mobile phones, however, for there is no clear connection between the information sent out and the position of the spectator.

Another category of services is represented by the student design competition at CHI'2004. This collection of projects aims at increasing the experience of being at arena sport events. Several prototype services were presented which all aimed at providing a more active spectatorship, where the audience is supposed to take part in scoring at gymnastics and diving [9]. Here, spectators are not passively fed with information, they rather play an active role in producing it. These concepts aim at making the spectatorship more appealing and fun by altering the conditions for the event, i.e. changing the roles of spectators and referees. However, they are focused on arena sports only.

METHOD

To gain understanding of the spectator's experience we have participated at six car rally events in the UK and Sweden, observing both spectators and behind the scenes. Rally racing shares similarities with other race and field events but also has obvious important differences from stadium spectating. However, particularly in Sweden, rally racing is one of the most popular of outdoor spectating events, as well as providing economic benefits to remote areas. It is also an activity that is supported by large amounts of advanced technology – at least on the side of the race participant.

A rally is a competition comprising fast driving on country 'dirt' roads. The drivers compete against each other by driving as fast as possible on special stages along a single itinerary that all drivers follow. They embark sequentially onto the special stages with a predetermined interval between cars. For the spectator, this structures the experience of the race into a rhythmic event, as each car will pass the spectators location on a regular interval. Witnessing a rally involves brief, intense moments of sound, smell and the view of fast maneuverings as a car passes the location alternated with one to two minutes of silence and anticipation for the next driver. Any deviation from the regular interval can reveal that one driver is faster or slower than previous drivers, or, if the interval is long, that an accident or something extraordinary might have happened. Thus anticipating the rhythmic temporality of the race is a clue to the overall standings at that specific special stage.

We visited 2 international rallies, the Wales Rally GB and The Uddeholm Swedish Rally, which both were part of the World Rally Series, and four national rallies in Sweden and in the UK. We video recorded spectators, and interviewed spectators. In total we have approximately 25-30 hours of video recordings. We also participated at the rallies as ordinary spectators, which include a number of activities such as planning which special stages to watch, how to find our way, where to park our car, finding 'the best spot', taking pictures, engaging in the race, looking in the program, finding out who is in the lead, etc. For the Wales Rally we also conducted observations behind the scenes of the event, observing how the event was televised, and how the event was arranged to accommodate the demands of a high-cost sport, and paying spectators.

RESULTS: PRACTICES OF SPECTATING

'A Nice Spot for Viewing'

A key concern for spectators is finding a good spot from which to watch. While this might seem mundane, where to watch encapsulates many of the dilemmas of being a spectator – how to watch the race close up, yet gain some sort of overview of what is going on. There are several strategies observable in how people choose the spot for spectating. There is a balance between getting an *overview*, i.e. seeing the cars during as long period as available, as well as getting an *up-close view*, i.e. being close to the action.

Fig. 1 Car zooming by (left). Car goes off the road (right).

Groups of spectators choose spots where they can see the rally cars for as long as possible. The cars are not only visible right in front of them, but also off in the distance. Additionally, the cars are also within audible reach for a long period of time. Some spectators place themselves in the inner part of a corner to maximize their closeness to the cars (fig. 1, left). This gives an extraordinary feeling of action – meters away from a driver going round a curve at high speed. Corners are also key points to observe the skill of drivers, who have find the right path to not go off the road, which occasionally happens (fig. 1, right). However, corner spectating often gives a poor overview of the race. The curves force the cars to pass at a relatively slower speed, which makes it difficult to judge the different speed of cars.

Ranking Cars

Spectators are standing beside the track, where there is usually no information provided by the organizers.

Spectators thus resort to various strategies to figure out how each car performs in relation to the others:

As-you-see-it ranking involves interpretation of the vehicles performance when they are in sight or in audible reach. This is observable in spectators' comments to each other. For example, in one of our videos a spectator makes the comment: "it was too wide, dragging him down". The car's skidding in the curves is made into an indication of its performance. The spectators also use the sound of the engines to compare performance, speed, as well as the many mechanical problems with the cars that arise in this punishing environment.

The spectators also have ways to rank a car's performance from its start to where they are positioned. We refer to this as *up-to-here ranking*. When the first car passes their location the spectators start the timekeeper, and keep it running. The interval between the starting times for the cars is around one or two minutes. By keeping track of the time, they can notice how well each car performs in relation to the first car passing. Further, as they are having an entry list and the cars are numbered, they can also figure out which car they are looking at. Some spectators commented that they preferred to be standing close to the finish of a special stage since their ranking would be more close to the actual results on that particular section.

In addition to the up-to-here ranking, the spectators also use the overall rankings provided by the media, with no reference to their location. In this case the reports broadcasted on the radio provide the spectators with details on the current standings. Spectators often brought radios, 'sharing' the broadcast with others. In this way a 'network' of public broadcast was created, which enabled the possibility for other spectators to overhear the current standings in the race. Other spectators resorted to retrieving more information, such as official SMS-services, calling people at other special stages, or calling people far remote sitting by a computer connected to the official rally website.

Capturing a Drive-By

Many spectators take photos of passing rally cars (fig. 1, left), using camera phones, digital cameras, video cameras or ordinary cameras [4]. In discussing photography with us, spectators emphasized capturing "lifted cars", "spurted gravel" and "skids". Finding a good spot for photographs can differ therefore from what is good for watching the race.

Taking photos is very much about capturing the up-close view. The spectators experience differs from the TV-experience in that it is a personal capturing of seeing the skilled driver handling and maneuvering a race car at high speed on a narrow road. Photographs on web pages, as well as sharing photos at the time of capture, emphasize the authorship of the images – 'I was there'.

Taking photographs is also a topic of their attention in the pauses between cars. They alter between the task of taking photos, and sharing pictures with others. Photos become valuable 'local resources' for conversations [8, VII p96], in how they give spectators something to talk about. Sharing and taking photos thus fits with the temporality of a race.

DESIGN LESSONS

We now focus more specifically on the design lessons we have drawn from our study. A first point to make is that spectating is valuable for the rich experience generated of being at the race. For the car rally spectators we studied, being out in the woods at a rally meant missing the overview provided by watching the race on television. Yet, this is replaced with a rich experience full of the incredible and momentary experience of rally cars passing by at high speed and at a close range.

However, this can generates something of a 'viewing paradox' – the event is viewed close up, but the significance of those events are often not known until later. Detail and emotion are richly experienced, but the overall context and story can be lost. When talking to those who edited the TV versions of rally events, they emphasized to us how they would try and "find the story" in the race, something impossible to see as a single group of spectators. Yet while there is value in communicating some of the general context of the race - and spectators already seek this - technologies should not take spectators attention away from what they can see and experience, since these are at the center of the live spectating experience.

A second point is that spectators are *active spectators*, in that they put considerable effort into trying to understand what they see, and talking about this with others. Spectators are not simply passive recipients of the cars going by, it is through their interaction and observation, that they produce the race as an enjoyable experience. For example, some spectators when interviewed expressed an interest in which car was performing best on this special stage, others simply what car was passing at the moment. This information is not necessarily that provided by television – rather it is what is happening 'just now' - in front of and around the spectator. This information, when established by spectators increased active personal engagement in the experience. Therefore, in developing new technologies spectators should not be considered as passive recipients. Rather the active engagement of spectators should be encouraged, for example, through a connection between the information provided, and the activity and position of the spectator.

Third, any technology needs to take into account the *social aspects of spectating*. Being a rally spectator is a social activity seeing that people go there to enjoy the company of others. In many ways spectating is valuable because of the 'local resources' that it provides for conversation with companions. The rally is full of conversation topics, things to talk about while waiting for action to unfold. This is also the case when discussions start after overhearing that others possess interesting information regarding the race. Accordingly a new technology should benefit from this, and give incentives for making it even more social.

MYSPLITTIME

To provide a better experience for the spectators out in the field, we here present MySplitTime (fig. 2) a novel mobile application using the implications given above. The prototype is a MIDP 2.0 J2ME Java application for the Nokia 6630 mobile camera phone. MySplitTime combines the activities of taking digital photos and clocking with actively capturing the 'up-to-here' ranking – how a car just photographed is doing. It automatically embeds the statistics of each rally car in their respective photograph. The application first downloads the starting list of cars to the phone. When a picture is taken of a car, the spectator then inputs the number of the car photographed. MySplitTime then provides the photo of the car with the identity of the driver, as well as his current time on that stage. This can be compared with the time of previous car's photograped.

Fig. 2 The MySplitTime prototype.

In using MySplitTime spectators take an active part in the rally in order to receive the up-to-here statistics. They must themselves be involved in their production. Moreover, the pictures and timing information are easily sharable between phones - user may send pictures with MMS or share them with parties in local proximity over infrared or Bluetooth connections. The pictures can also be shown to others by passing the device around.

CONCLUSION

Our analysis has focused specifically on car rallies. Obviously there are clear differences between this and other types of spectating, particularly stadium based spectating. In ongoing work we are extending these observations through participation at other field and stadium events. Designing for rally events, however, presents considerable design challenges in itself, as well as being an interesting venue for new technology.

A key finding of our work is that spectating is an active process, and automating certain aspects of being a spectator (such as providing more general information about the overall ranking) may not necessarily enhance the experience. The spectators have chosen their position in respect to reach a balance between getting a good overview and to observe intense moments of action. This is also of importance when they are taking photos. Applications should thus enhance this engagement, than simply push potentially irrelevant information at spectators.

The prototype presented, MySplitTime, is designed to benefit from the circumstances around spectating. It adds two appreciated activities taking photos and time-keeping. Using a camera phone taking photos of the competitors, the services automatically keeps track of the current rankings up to the geographical position of the spectators. In future work we plan to evaluate this prototype, as well as explore other prototypes that enhance the activity and sociability of spectating.

In conclusion, we present these results as a start to a better understanding of how to design for the case of sport spectating. While we acknowledge the potential differences in different sporting events, investigating one example in detail has given us a nuanced understanding of this case, and how technology could help, and hinder the experience. We hope these results will be valuable for the future design of audience technologies, a promising area for mobile technology.

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