



Designing for Mobile Services

HiFive Final Report

Spencer Sugarman
Mark Shuster
Trevor Savage
Sara Lee Kunlong
Ray Luong



HiFive is a mobile application for finding interesting people, sessions, and opportunities at conferences. Combining social networking and location awareness, HiFive helps interesting people at conferences meet each other in a fun and adventurous way.

Introduction

People at large, crowded events often unknowingly miss the opportunity to interact with others who share similar interests. While networking in the online space is a simple matter of finding keywords relevant to one's interests, the physical space currently offers little to automate this process. We see an opportunity in the online mobile space to facilitate the process of finding and meeting people at large events. From our research, we discovered that conferences would serve as an ideal type of event for a mobile solution.

Our idea, called HiFive, is a mobile application that helps people find the most interesting people and sessions at their conference.

At South By Southwest (SXSW), one of the major interactive conferences of the year, more than 20,000 people attended, at least 800 sessions were held, and thousands of companies were present to get their brands and ideas out. For the individual attendee, this kind of conference experience

becomes overwhelming when trying to decide who to talk to and see.

Our interviews with conference attendees revealed networking to be a primary activity at conferences. People go to conferences to look for jobs, potential hires, potential collaborators, or often simply to learn more about the industry from knowledgeable people. Although a conference is created for a specific industry, people still have a difficult time finding the people most relevant to them. Particularly when events like SXSW are attended by thousands, attendees must filter through an overwhelming amount of information and have a lot of conversations before finding a promising opportunity that aligns with their interests.

Similar breakdowns exist at conferences at all sizes. While it is obviously much easier to meet people at ad hoc unconferences with only a dozen or so attendees, discovering which connections are most relevant can be hit or miss. Moreover, it



is often hard to capitalize on the connections made. We spoke with a number of individuals who noted the difficulty in carrying contacts into the future. Online networking is supported by services like LinkedIn, Facebook, and digital portfolios, but networking in person does not have these tools.

With the increasing proliferation of smartphones and location-aware technology, there is an opportunity to bring to conference attendees the tools they need most when they need them: during the actual conference.

Though HiFive mainly supports conference attendees in their event experience, our research uncovered two additional stakeholders who would benefit from our application. First, conference organizers can greatly benefit from HiFive's ability to consolidate attendee data as well as push information quickly to attendees. This communication between the organizers and attendees mutually benefits both parties. By

better understanding the needs and desires of their attendees, organizers can plan ahead for future events to cater to these needs. This could mean focusing more on specific speakers, types of sessions, or companies that attendees are interested in. We found through our interviews that event organizers often have to make last minute changes at the scene of the event. By providing a platform where organizers can communicate efficiently with their attendees, they can quickly react to such changes and notify attendees if, for example, a session talk gets delayed.

Finally, conference sponsors would greatly benefit from a system that is able to gather specific data about the interests of attendees. By having a thorough understanding of what's most popular among attendees at a conference, sponsors can more specifically target their audience. They get more value from their sponsorship relationships with the conference if they know that, for instance, more than 90% of the conference attendees are interested in their service.

This report details the feasibility and viability of HiFive based on the research and analysis we conducted over the past semester.



Tech Feasibility

Features

The HiFive application will offer six main features:

1. Location awareness

Using GPS technology, attendees can roughly locate other users they have bookmarked in the conference, provided that these users are willing to share their location.

2. Recommendations

The recommendation algorithm running on the server will use the information in users' profiles and recommend people users might be interested in networking with based on matched interests and contacts.

HiFive would synthesize data from social services such as LinkedIn and Facebook to enable this.



3. Bookmarks

After viewing attendees' profiles that the application recommends, user can bookmark or "follow" these users and get notifications about their locations when they are nearby or in the same session.



4. Notifications

Aside from notification about people that the user is "following", If there is a change of conference data such as change of schedule, organizers can edit the information and notifications of the change will be automatically sent to attendees.

5. Contacts

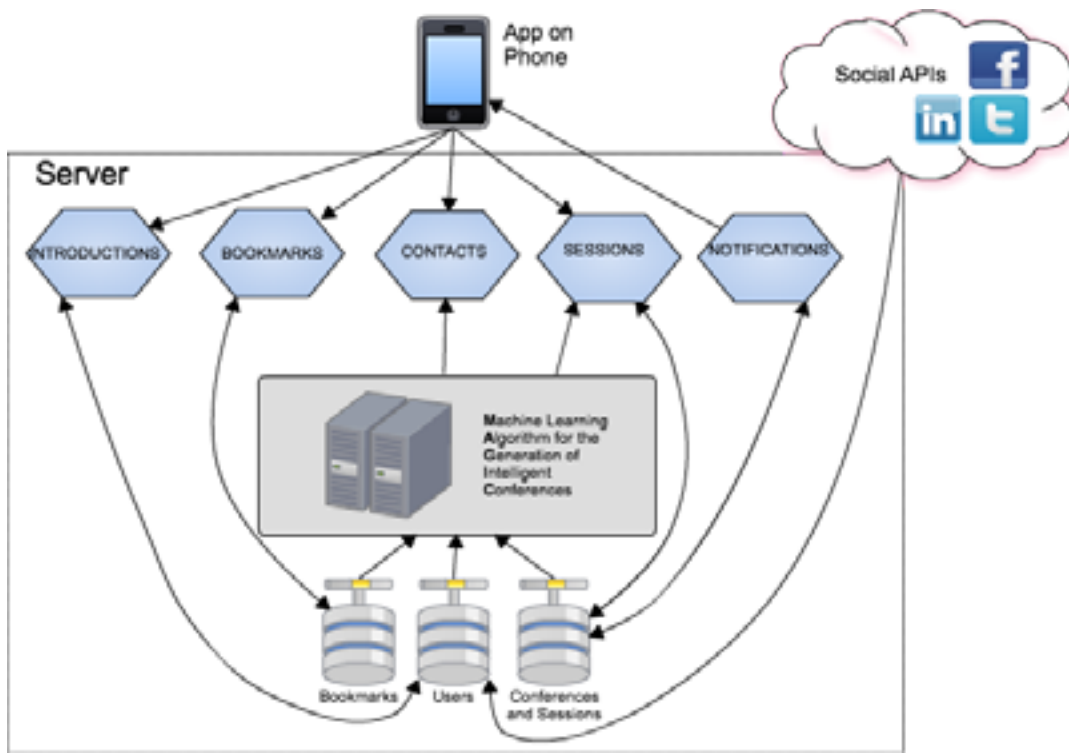
Attendees can contact each other and exchange contact information through the application. After the conference users can also log in through the website to keep track of people with whom they have made connections.



6. Sessions

Users will be able to rate the session and post feedback of sessions through the application. This will help users at large conference with many sessions decide which session they should attend and organizers to get feedback from users so that they can stay updated to the event and make change or improve in the future.

Architecture



There are 3 major parts that form the architecture of the HiFive application.

1. Client side

The client side includes the application on mobile devices and web interface. conference data will be cached in the application but can be updated by organizers. Attendees and organizers can receive recommendations and notifications real-time through their mobile devices while at the conference and

log in through the website before or after the event. For example, organizers can publish the schedule of the event through web interface and edit it through the mobile application and attendees can keep track of connections they made after the event.

2. Server side

The server side hosts the website, databases and recommendation engine.

2.1 Databases

- Users database which keeps the information on user profiles
- Bookmarks database which keeps the bookmarks record on users that attendees make
- Conference and sessions database which keeps the information of the conference such as schedule, guest speakers, and venue.

2.2 Recommendation engine

The Machine Learning Algorithm for the Generation of Intelligent Conferences (M.A.G.I.C.) is a recommendation engine that runs on the server for generating recommendations based on information from users' profiles.

3. Social APIs

HiFive application will use social services such as the Facebook, Twitter, and LinkedIn APIs. This will enable attendees to connect using these social networking sites, and allow organizers another avenue through which to advertise.

Development

Based on the above features and system architecture, we outlined 15 main use cases. Given their number and complexity, we estimate roughly 71 programmer-weeks would be needed to build HiFive. By hiring 3 programmers, the application could be completed in 24 weeks, or 6 months.

Employing 3 programmers for six months will cost approximately \$108,000 at \$40 per hour. In Pittsburgh, Pennsylvania, workspace can be obtained for approximately \$12,000, bringing the total start-up costs to **\$120,000**.



Financial Viability

Running costs

Once running, we predict the entire HiFive operation could exist with a lean staff of one sales evangelist, one full-time developer, and two part-time developers on a needed basis. Per month, this would total roughly \$20,000 plus commission for sales.

To accommodate the large amount of data and traffic, our system would utilize Amazon Elastic Compute Cloud (EC2) at an estimated \$20,000 per month. Using the EC2 system would enable our application to scale appropriately based on demand, meaning the running costs of the service could potentially decrease dramatically during slower months.

Workspace could again be rented at roughly \$2,000 per month. In total, monthly running costs for HiFive would be **\$42,000**.

Market

Based on our market research, the United States hosts about 1,200 conferences per year. Per month, this would be 100 conferences with an average of 500 attendees per conference, including at least two large (1500+ attendees) conference.

Revenue

HiFive would exist in two forms: free and premium. In the free model, users would have access to the complete suite of tools, and revenue would be generated from relevant Google advertising or targeted, local advertising. For larger conferences, sponsors could buy ad space in the application. We estimate this free model could reach roughly 3% of potential users, meaning around 1,500 conference attendees per month. At \$0.30 per user, this would generate \$450 per month.



The larger source of revenue would be the premium application. This version would allow conference organizers to purchase and brand a “white-box” version of the application, marking the application with their unique identity and sponsors. Organizers would gain valuable power over the conference events, and deeper access to session and attendee data. Premium licenses would be sold in bulk to conference organizers at \$10 per attendee.

To recoup running costs, 4,155 premium licenses would need to be sold month. This is eminently doable, as it equates to only three large conferences, 9 average conferences, or some combination of the two. A sales staff working full-time should be able to accomplish this without trouble.



Conclusion

Our research showed an obvious gap in the conference space, and HiFive is the perfect way to fill this gap. Conferences are a hotbed for finding new collaborators and employers, and attendees need an easy, convenient means for meeting these interesting (and even potentially profitable) people around them. Leveraging the powerful, location-aware technology so many attendees carry with them would enable attendees to have a great networking experience. Better yet, facilitating this would ease many of the conference organizer's breakdowns while providing the information needed to continue running popular and successful conferences for years to come.

Given how useful such an application would be to conference organizers, we envision the app would be supported mainly by a premium model in which organizers by bulk licenses for all of their attendees. With over 100 conferences occurring each month, we would need to reach only a small fraction (9% or less) in order to reach profitability.

Important numbers

Start-up costs:	\$120,000
Start-up time:	24 weeks
Running costs:	\$42,000
Conferences/month:	100
Conferences needed:	9

