This paper discusses the use of crowdsourcing as a new approach for architectural design acquisition. We will give an overview of the concept of crowdsourcing, and elaborate on its particular application in architecture via concrete projects executed on Arcbazar, a first-of-its-kind crowdsourcing platform for architectural design services. We argue that online crowdsourcing platforms can have an immense impact on smaller-scale design challenges, e.g., home remodeling projects and landscape and interior design challenges, and can potentially carry these often neglected projects into the architectural design sphere. In this paper we will discuss the methods and techniques of architectural crowdsourcing and illustrate the processes and outcomes through a series of projects: a remodeling project for a closet; an interior design challenge for a dining space; and a layout problem for an apartment complex. We will then evaluate the protocol and outcome of architectural crowdsourcing, and convey the professional and popular media response to this new method of architectural design acquisition.

## References


## Work in Progress

### CROWDSOURCING ARCHITECTURE: A DISRUPTIVE MODEL IN ARCHITECTURAL PRACTICE

**ABSTRACT**

This paper discusses the use of crowdsourcing as a new approach for architectural design acquisition. We will give an overview of the concept of crowdsourcing, and elaborate on its particular application in architecture via concrete projects executed on Arcbazar, a first-of-its-kind crowdsourcing platform for architectural design services. We argue that online crowdsourcing platforms can have an immense impact on smaller-scale design challenges, e.g., home remodeling projects and landscape and interior design challenges, and can potentially carry these often neglected projects into the architectural design sphere. In this paper we will discuss the methods and techniques of architectural crowdsourcing and illustrate the processes and outcomes through a series of projects: a remodeling project for a closet; an interior design challenge for a dining space; and a layout problem for an apartment complex. We will then evaluate the protocol and outcome of architectural crowdsourcing, and convey the professional and popular media response to this new method of architectural design acquisition.
1 INTRODUCTION
Throughout history, design competitions have been an integral part of architectural production—from the Parthenon, to the Hagia Sophia, to medieval churches and the Freedom Tower in New York City. All these projects utilized the collective design intelligence of architectural designers through a competition protocol. With the advent of the internet and advanced information technologies, these protocols have been adapted to online crowdsourcing platforms, where for the first time smaller-scale projects can make use of the fair competition process.

The traditional model of architectural design acquisition is for almost all smaller-scale projects inefficient, unaffordable, and unavailable. According to BLSWorld’s Industry Report, the total design services billed by architectural offices in 2011 were $42 billion. This amount was carved out from $330 billion of construction expenditures. However, according to the US Census Bureau the total expenditures on construction projects were about $680 billion the same year, consisting of remodeling, residential, commercial, and institutional projects. Extrapolating that the total opportunity for architectural design services is now 9 percent of the construction cost, the amount should add up to about $65 billion. The difference between the actual billed architectural services and the maximum opportunity is a staggering $22 billion. This unmet market consists mostly of smaller-scale remodeling projects, which never get into the world of architectural service providers.

The reason why a large number of potential clients do not pursue architectural design services is, firstly, due to the circumscribed way of finding an architectural designer, i.e., clients often find architects via word of mouth, or through family and friends; secondly, the relatively higher fees of service providers, which can range between 10 and 15 percent of the construction cost; and lastly, the prevailing fear that after all that hard work and cost, clients may or may not like the final product they get from one designer. Therefore, most clients bypass the architectural design sphere altogether and directly use the services of local builders and contractors, or simply do it themselves.

In this paper, we will present architectural crowdsourcing as an alternative method to traditional design acquisition, which can potentially overcome the abovementioned shortcomings and bring smaller-scale projects into the realm of architectural practice. We will analyze and evaluate concrete examples executed through Arcbazar, an online crowdsourcing platform that was launched in the summer of 2011 in Cambridge, MA.

2 BACKGROUND
In June 2006 Wired magazine featured the groundbreaking article by Jeff Howe, “The Rise of Crowdsourcing,” in which Howe coins the term “crowdsourcing” from the combination of the words “crew” and “outsourcing” (Howe 2006). It defines a method that utilizes distributed people to help accomplish a particular task. For example, Wikipedia uses crowdsourcing to establish its extensive web content. In these and similar crowdsourcing projects, masses are invited to propose and even assist in developing new product or service, refine a design, compute or derive various algorithms, or assist in planning, arranging, or evaluating significant quantities of information into viable data.

As a concrete example, EnterpiseWorks, an international nonprofit organization out of Washington, DC, needed ideas for “low cost wastewater collection systems” to fight the lack of access to clean water resources in developing countries. For this purpose they launched a challenge at Innocentive.com, a crowdsourcing platform for science and engineering problems. They set their award at $15,000 and within 60 days received hundreds of solutions to their problem from around the world. Innocentive.com’s platform enabled EnterpiseWorks to solve a seemingly unsolvable problem at an affordable cost—potentially transforming the lives of millions in the developing world.

In architecture, crowdsourcing design problems is actually not a novelty. Wealthy clients or government agencies have always solicited multiple design concepts for significant projects throughout history. Competitions among architects facilitate the generation of innovative design concepts, stimulate public debate, and generate publicity for the project at hand. However, clients with smaller-scale projects could not afford the expense, time-consuming, and often highly regulated protocols of conventional competitions. This is where online crowdsourcing platforms can make a great impact, and offer smaller-scale projects access to competitive and affordable design solutions.

3 CROWDSOURCING ARCHITECTURE
As part of this research an interdisciplinary team of architects, computer scientists, and business developers launched a crowdsourcing platform to explore the potential opportunities of crowdsourcing in architectural design (Figure 1).

In this scheme the crowdsourcing system is a tetrahedron comprised of clients, designers, and contractors. It is based on the dual crowdsourcing protocol, where the design is first crowdsourced to architectural designers, and then the design’s physical execution to local builders and contractors. In this constellation, the project constitutes the top of the tetrahedron, networking the triumvirate of clients, designers, and contractors.

3.1 The Protocol
In a nutshell, clients post a project brief and set up their evaluation criteria, their deliverables list, a deadline, and their project price. Designers then review the project, sign up, and submit their design concepts. After the deadline, clients rank the top three projects, and the system distributes the award money among the winners. As in traditional competitions, the platform distributes aliases, which ensures the privacy of designers. This integrated feature allows designers to remain anonymous, while at the same time it assures that the eventual ranking is merit based. During the competition process, clients and designers can communicate anonymously through a public wall on the project page.

4 THE IMPLEMENTATION
We will briefly describe three case projects: a closet design for a homeowner in Natick, MA; a dining space arrangement for a tenant in Malden, MA, and an apartment building for a developer in Turkey.

4.1 Case 1: A Closet Space
The first project completed on the platform was a remodeling project for a difficult closet space in a teenage girl’s room. The closet had a slanted roof, and the client wanted to see whether a portion of the space could be used for storage. After the deadline, clients ranked the top three projects, and the system distributed the award money among the winners. As in traditional competitions, the platform distributes aliases, which ensures the privacy of designers. This integrated feature allows designers to remain anonymous, while at the same time it assures that the eventual ranking is merit based. During the competition process, clients and designers can communicate anonymously through a public wall on the project page.

4.2 Case 2: A Dining Space
The second case project was the design of a concept for a dining space in a new townhouse in Istanbul, Turkey. The client wanted to see whether architects could come up with creative ideas for their dining room. The client set up a deadline of 30 days and offered a prize of $2,000. After the deadline, clients ranked the top three projects, and the system distributed the award money among the winners. As in traditional competitions, the platform distributes aliases, which ensures the privacy of designers. This integrated feature allows designers to remain anonymous, while at the same time it assures that the eventual ranking is merit based. During the competition process, clients and designers can communicate anonymously through a public wall on the project page.

4.3 Case 3: An Apartment Building
The final case project was the design of a new apartment building in Istanbul, Turkey. The client wanted to see whether architects could come up with creative ideas for their apartment building. The client set up a deadline of 30 days and offered a prize of $2,000. After the deadline, clients ranked the top three projects, and the system distributed the award money among the winners. As in traditional competitions, the platform distributes aliases, which ensures the privacy of designers. This integrated feature allows designers to remain anonymous, while at the same time it assures that the eventual ranking is merit based. During the competition process, clients and designers can communicate anonymously through a public wall on the project page.
In this second example, a client crowdsourced the design of a dining space that was located in an unusual apartment layout. Although there was extra footage in the kitchen area, it was not enough space to create a spacious dining area. The client launched a competition and received five design submissions from Indonesia, Serbia, Spain, India, and the US (Figure 5). The winning design solved her peculiar layout problem.

4.3 Case 3: An Apartment Building
A developer in Turkey had a tricky building lot, i.e., a lot that was open on three sides to streets but closed on the fourth side because it abutted a neighboring building (Figure 5). It seemed impossible to provide natural light for all rooms in all four apartment units. The client uploaded images, dimensions, and a project brief, and received 21 design submissions from around the world (Figure 6). The collective design intelligence offered a solution to a seemingly unsolvable space problem.

4.4 Beyond Residential Projects
Our research initially targeted small-to-medium-scale architectural projects; however, the crowdsourcing platform demonstrated success at larger-scale projects as well. It was able to implement commercial and institutional projects. It successfully completed an office space, a parking lot, and a dog-care facility, among many other projects. Also, institutional projects were effectively executed, such as a community library in Maryland and a redevelopment project for a vacant school building in Somerville, MA.

In the latter case, the city launched an eight-week competition, and remarkably, 80 designers from around the world signed up and worked on this long-neglected area in Somerville. The final submissions were evaluated via an online polling system by a Somerville focus group. The process set an exemplary protocol for transparent evaluation methods in architectural crowdsourcing.

The World Bank noticed the effectiveness of the Somerville project and is working on fighting poverty in the developing world through similar crowdsourcing procedures. Arcbazar received mixed reactions from the professional media. Dwell Magazine, America’s leading home and architecture magazine, called the launch of Arcbazar “the worst thing to happen to architecture since the internet started.” This statement caused many heated debates among architectural bloggers worldwide. The Architects’ Journal published an article on the disruptive model headlined: “Architecture crowd-sourcing website criticized: Architects have slammed a threatening new crowd-sourcing website in the US which promises to reduce clients’ costs.” (Fuldner 2011). However, the goal of this project was not to challenge existing job opportunities or devalue design services. On the contrary, our aim was to expand the architectural design market and offer an alternative path to clients who are not able to access exclusive design services: an online platform, where any scale and type of project—from a close space to urban design problems of the developing world—can make use of the fair competition process.

REFERENCES


