

# CS147 Project Proposal: Discovering Mobile Work

*September 30th, 2014 - John Yang-Sammataro*

## Problem and Idea

I would like to find a way to help the underemployed and impoverished discover more jobs, increase their income, and lift themselves out of poverty. Poverty pervades throughout every aspect of the globe and recently in our more competitive society, underemployment - not enough and usually temporary work - is becoming a bigger issue. There are an increasing number of mobile people - from the [recent Syrian refugee crisis](#) to those [homeless on the streets of San Francisco](#) - who have mobile devices connecting them to the rest of the world. Is there a way to leverage these devices to help make them more productive members of society? Improving their livelihood is not only an economic need, it is a fundamental human imperative.

## Analysis of Problem

Poverty and underemployment are two of the biggest global problems in our day and age. The International Labour Organization (ILO) estimates that [202 million people](#) are unemployed across the world. Even for considering those who are employed, almost one half of the world's population, [3 billion people, live in poverty on less than \\$2.50 a day](#) and [1.3 billion people live on \\$1.25 a day](#). This problem is not limited to the developing world. Even in the United States, [8.1% of the population is unemployed](#) which is equivalent to roughly 25.42 million people.

Underemployment has become a further problem for unskilled workers with the rise of temporary work. In the United States, one fifth of job recovery after the recession - about [2.7 million jobs](#) - were temporary work positions. For Walmart workers to Starbucks baristas finding work no longer means a steady source of income. Instead, it means fluctuating wages, fierce competition, and uncertain schedules sent to their mobile phones.

In our increasingly connected world, [Amazon Mechanical Turk](#) and a number of similar competitors have risen to provide digital jobs for the unskilled and underemployed. Companies provide Human Intelligence Tasks (HITS) that anyone with a desktop computer and internet can login and complete these tasks for payment. There is even a nonprofit called [Samasource](#) which specifically recruits HITS workers in the developing world. These companies seem like a perfect opportunity to match companies with low skilled work and the billions of unemployed with the work they need.

The impact of these digital work companies is surprisingly small at the moment. Amazon Mechanical Turk is estimated to pay out anywhere from [\\$10 million to 50 million dollars a year to workers](#). Even more surprising, Samasource, which aims to help those workers most in need, has helped less than 5,000 workers over its four years of existence. The positive aspect of these platforms are that they allow workers to make [at least United States minimum wage](#) and help them be productive, contributing members to society. The main downside is that they are being adopted by only a tiny amount of the 3 billion people in the world living on less than \$2.50 a day who could benefit from them.

The key problem is that these work for hire services are not accessible to populations that only have access to mobile devices. Amazon Mechanical Turk has a very clunky user interface (see Figure A) with inconsistent microtask postings that are only feasible with a keyboard and a large screen. Similarly, Samasource only employs workers through stationary computer centers. The vast majority of the 3 billion people living in poverty do not have access to large computer hardware, but [increasingly many have access to mobile smart phones and the trend show no sign of stopping](#). Furthermore, temporary workers in the United States, often have [hours of unpaid down time](#) between jobs without access to a desktop.

## Suggested Solution

I propose building a new Mechanical Turk like service that focuses on delivering HITS to impoverished and underemployed workers through an interface optimized for mobile devices (see Figure B).

Specifically, the improved HITS application would have the following aspects:

- 1) Standardizes and simplifies tasks
- 2) Optimizes the task completion user interface for mobile devices
- 3) Facilitates new ways for workers in remote areas to be paid

By standardizing and simplifying HITS in an application with a simpler user interface and constricting tasks offered by companies to a specific set, tasks could be opened up to a wider range of users and be more easily optimized for mobile devices.

Rethinking HITS user interfaces themselves for mobile devices would make them further accessible to the world's poorest or those on the go without access to desktops. For instance, instead of using clunky radio buttons on Mechanical Turk, one could use a swipe interface to categorize pictures. Instead of having users click between different pages, they might drag to move between different tasks.

Finally, providing a means other than a bank account (for instance, paying in Bitcoin or credits with a local store) would allow a wider range of disadvantaged workers to be compensated.

## Experiment

The success of the suggested Mobile Mechanical Turk solution would require testing if each of the three specific improvements above would be adopted and useful for stakeholders. I would break the experiment into three mini experiments:

- 1) **Standardization and Simplification of Tasks** - In this test, we would use the simplicity and categories of HITS as the independent variable and survey company representatives buying HITS as participants. The simple method of asking if they would buy the HITS could be used to measure their interest in buying such tasks as the dependent variable.
- 2) **Optimization of HITS for Mobile Interfaces** - In this test, we would alter the type of interface (a desktop interface as a control and various mobile interfaces) as the independent variables and find unemployed or temporary workers to be participants. We would ask them to execute HITS using the interface and observe them as a method and measure their willingness to use the interface, productivity (in terms of time to complete tasks), and accuracy when executing tasks as dependent variables to measure the effectiveness of the interface
- 3) **Design of Payments** - One hurdle for the proposed solution is determining the best way to reward workers. We might vary the type of payment method whether Bitcoin delivered to their mobile device or a flow which involves going to a local store to redeem credits as an independent variable. The qualitative feedback from underemployed or unemployed participants could be measured as a dependent variable as to what will be the most motivating means. The method could be a simple survey.

Prototype for this experiment would ideally be a minimal web app that could be used to execute HITS. However, it could also be mostly "hand shaken" without digital technology. (1) and (3) could be determined with pen and paper surveys given to participants. (2) could be executed by making mock paper interfaces at the scale of a mobile interface, and walking through participants in a mock of what the application might actually look like.

In terms of results, we would hope that companies have demand for simple HITS (1), unemployed participants could easily use mobile interfaces to complete these HITS (2), and they would be willing to be paid in an easy to implement method such as Bitcoin (3). If these results were validated, I believe that it would mean that mobile mechanical turk work could be a viable means of increasing jobs amongst the millions of unemployed and billions of impoverished people in the world. The one potentially negative aspect of this experiment being a success is that while the application could provide a better life for many of the world's poor, most HITS on mobile devices will most likely not be very stimulating or fulfilling work. A successful application could lift people to higher economic levels, but could only lift them so far.

# Appendix

The screenshot displays the Amazon Mechanical Turk interface for a HIT titled "Product Categorization". The interface is cluttered with navigation options and search filters. The main content area shows a list of HITs with the following details:

Requester	HIT Expiration Date	Reward	Time Allotted	HITs Available
robzit0d	Oct 17, 2014 (2 weeks 1 day)	\$0.00	48 minutes	24056
PriceGrabber.com	Oct 23, 2014 (3 weeks 1 day)	\$0.03	20 minutes	11218
Jon Brelig	Oct 8, 2014 (6 days 23 hours)	\$0.05	24 minutes	9164
CopyText, Inc.	Oct 7, 2014 (6 days 4 hours)	\$0.01	10 minutes	8288
Angela	Oct 5, 2014 (3 days 21 hours)	\$0.02	60 minutes	7474

The detailed view of the "Product Categorization" HIT shows a product image of a bed and a list of categories to choose from:

- Furniture > Bedroom Furniture > Bedroom Mattresses
- Indoor Living > Bedding > Bedroom Sheets & Pillowcases
- Indoor Living > Bedding > Bedroom Pillows
- Indoor Living > Decorative Textiles > Throws & Blankets
- None of the Above

Figure A: Clunky desktop interface of Amazon Mechanical Turk for categorization of a picture (Source: <https://www.mturk.com>)

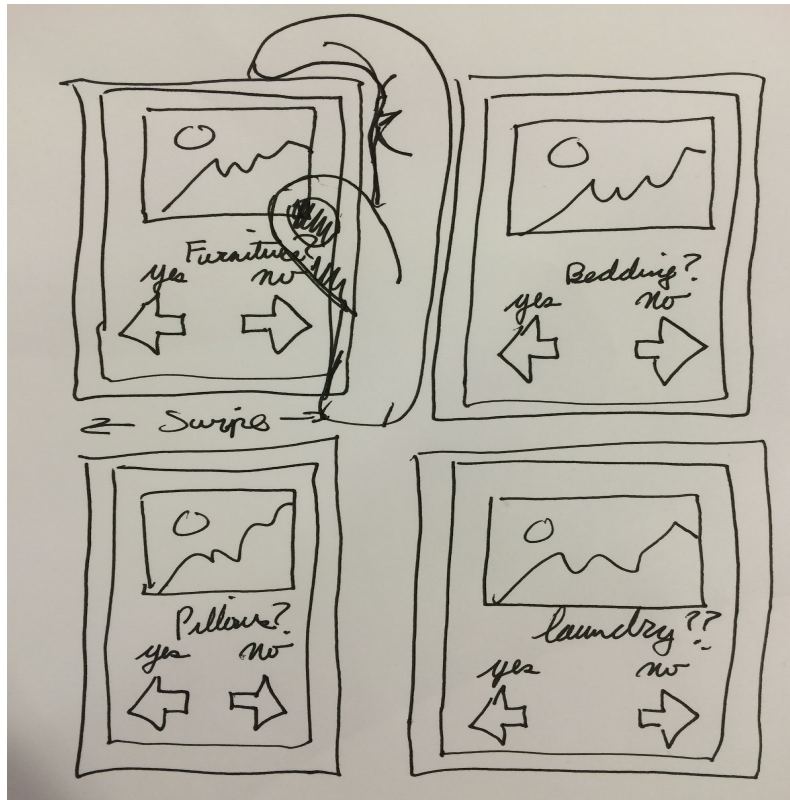


Figure B: A proposed alternative user interface for categorization of a picture (Source: John Yang-Sammataro)