Crowdtrust
Group Project

Giovanni Charles Adam Fiksen Ryan Jackson John Walker

January 2, 2013

1 Introduction

1.1 Crowdsourcing and the problems it faces

Our project concerns *crowdsourcing* 'the book' would describe crowdsourcing as the principle of obtaining an accurate and appropriate result by having many different contributors performing a task but we'd like to start with a story which we believe encapsulates the idea of crowdsourcing in its most positive and useful light.

In January 2009 Timothy Gowers (Fields Medal winner and avid blogger) used his blog to post a striking question *Is massively collaborative mathematics possible?*. He posted a difficult and unsolved mathematical problem he was particularly interested in and invited people to contribute to its solution in the comments section. The project initally got off to a slow start but once the ice was broken the comments flooded in. 37 days , 27 contibuters and 800 comments later Timothy Gowers was able to announce that not only had they solved the original problem but they had also solved a harder generalisation of it, he called his experiment the *Polymath Project* .

This is a nice example of how crowd sourcing can be used to combine the skills of many individuals and produce an answers to a complex problem, however Crowd sourcing can be used to solve a wide variety of problems with a wide variety of motivations for instance:

- *Image tagging* is an extemely arduous task for an individual or small group of people to perform and tagging a relatively large set of images could take weeks or even months, outsourcing this to the crowd could have the job done in a number of hours.
- *Conducting surveys* can require asking a huge number of people many of whom are unwilling to take the survey in the first place
- *Searching for missing persons* could require a complex and costly ground operation in a foreign country which is hard to co-ordinate. A crowd sourced search for aviator Steve Fosset involved salalite images being sent to the crowd with users asking to flag suspcious objects which could look like a crash site.

This is all well and good in theory but it leaves us with a number of problems, an introduction to these problems is provided below but they are discussed and addressed in much greater details at various stages throughout the report:

1. *How do we get these problems to the crowd?* It is unlikely many people with a problem to be solved would want to go to the trouble of creating a crowd themselves and this be comparitive to the complexity of the problem itself therefore there is a need for a third party crowd management system.

2. *What problems can we ask the crowd?* Specialised crowds have been successful and certainly have their uses for instance www.stackoverflow.com can be thought of as a crowd specialising in the solution of computing problems, however it is unlikely I would be able to find a specialised crowd to indentify bird pictures or to search satellite images for crash sites, therefore I need access to a generalised crowd able to adapt to and solve a wide variety of problems. The crowd management party therefore needs to provide the ability to ask a wide variety of questions and the ability to easily encorporate new questions in response to new technology.

3. emphHow many people do we ask, who do we ask and how can we trust what they say? These are all problems the crowd management party faces, how many people do you have to ask to be sure of a cor

1.2 A formal specification of our objectives

2 Design and Implementation

3 Evaluation

4 Conclusion and Future Extensions

5 Project Management

6 Appendix

References