

**Level | PGR**



Ex U.S. President Barack Obama  
Expressing Emotion / Reuters



The 7 elements of Wellbeing according to  
the WELL buildings standard / WELL



Screenshot of your author recording  
himself

## Gauging Occupant Wellbeing Through Facial Emotions

Research Student | Mark Allen  
Supervisor | Dr Mauro Overend

**Overview** | Occupant wellbeing is a hot topic right now as businesses begin to look at ways in which they can improve their productivity and creativity in increasingly competitive markets. This project sets out to try a new and experimental idea, that wellbeing in buildings can be measured using a combination of emotion and speech recognition software and buildings controlled and even designed using this data.

Several case studies are planned in collaboration with industry partners and other departments. Occupants will be monitored before and after office refurbishments using a webcam in addition to the more usual occupant surveys. Further, the offices will be examined and rated as to their performance in relation to wellbeing using the WELL building standard.

**Outcomes and Impact** | The aim of the project is to see if the emotions gathered from facial and speech recognition software can be used to gauge wellbeing. This will help to create evidence based data that informs design that benefits or hinders wellbeing. Further, to see how we can control elements of a building using this data for the benefit of the occupants wellbeing.

There is currently a lack of evidence based data regarding good design for wellbeing. Instead, architects and designers alike rely on 'intuition' and 'best practice'. The impact of this project is twofold. First it helps create this evidence based data for design for wellbeing. Second, it could offer an opportunity to control elements of a building automatically, maximising the wellbeing of occupants.

**Work Involved** | The project will focus on the following stages:

- Broad literature survey which covers the multidisciplinary nature of the subject.
- Gathering and processing data from case studies including: The Dyson Building (Hydroponic Plants), BRE (Biophilic Office Refurbishment) and Pharmacology Department (Lighting Upgrade) so far.
- Develop a framework in which this information can be used and transform it into guidance for design and control of buildings.