



Attendance Monitoring

DIGITAL BURSARY REPORT

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Introduction

During the final year of my Biomedical Science undergraduate degree, I undertook a pilot project carried out by Lancaster University Information Systems Services (ISS) in monitoring the attendance of students from three separate degree modules, namely a computer science (SCC) module, an accounting and finance (ACF) module as well as a philosophy, politics and religion (PHIL) module.

The project comprised of gathering feedback from participating students, lecturers and teaching staff, collating and then analysing information to be presented for follow up pilots and for future reference.

Project Overview

Step 1: Carry out focus groups with participating students

Step 2: Carry out focus groups with participating lecturers and teaching staff

Step 3: Identify the students and their participation in the pilot project

Step 4: Cross-reference students who attended focus groups and absentees

Step 5: Divide participants into two groups of those who i) participated or ii) did not participate

Step 6: Send out survey to separate groups to gauge emotional response towards the implementation of attendance monitoring

Step 7: Collate information and submit report of participant's response

Step 8: Suggest follow up recommendation to improve future pilot projects

Attendance Monitoring Pilot

The attendance monitoring system works by the detection of the user through the iLancaster app which connect via Bluetooth to an iBeacon. A one-time registration is required the first time the user intends to participate.

Subsequently, the attendance is automatically registered and a notification is sent to the user when their attendance has been registered. Attendance monitored can be reviewed by accessing Moodle, the Virtual Learning Environment (VLE) for Lancaster University.

Project Participant Requirement

In order for the pilot to be carried out successfully, the requirement or rather, the underlying assumption was that each student possessed a smart phone which ran on either an iOS or an Android system. Unfortunately, this did not seem to be the case for some people that provided feedback.

Aims

Further to the initial aims to collect attendance information of students, the pilot project was also set up to monitor attendance for:

- i) 80% attendance requirement for degree conferment
- ii) Satisfactory attendance monitoring for visa purpose for immigration purposes

The pilot project intended to take over the current paper method of collecting attendance and replace it with an online version which would reduce the time required for administration staff. Also, as teaching staff have access to a separate virtual learning space for them to observe attendance, this allows for teaching staff to make checks in confirming attendance of students. These checks however, are thought to be only important during the pilot stage and would not be utilised as often after the official launch of the system.

In addition, the attendance monitoring also serves to input data directly onto the online portal so that relevant information is updated immediately and will allow for updated data to be kept at all times.

The focus groups that were carried out served as a platform to engage in-depth issues concerning the attendance monitoring system before launching a launch system. The focus groups were targeted separately towards staff and students to factor out problems that may have risen by either groups of participants which enable for enhancement of future pilots.

Impact

From the 12 teaching staff and 512 students who took part in the pilot, the feedback rate that we received was 8.4%, with higher response rate 9.97% from students who did not register their attendance through the project although participating in the pilot. The total number of participants who were successful at registering their attendance were 191 with 321 students not being able or did not register their attendance through the pilot project.

Feedback highlights from project

Frequently reported problem:

- Unable to register
- Unsuitable device disabling registration
- Tutors not encouraging app sign-in
- Summary attendance reports absence although previously received notification of having signed-in
- “Orwellian surveillance” - uncomfortable with use of device for monitoring
 - ❖ A few people who provided feedback did not feel comfortable having their devices monitored, which is categorized by some participants as a form of an Orwellian monitoring system.

Frequently suggested reasons for inability to sign-in:

- Forgot device
- Device is not up-to-date due to model of device (i.e. iPhone 4, Nokia)
- Device out of battery
- iBeacon signal not received

Frequently suggested solutions:

How would students like to receive notification about signing-in:

- E-mail (vast majority 52%)
- Push notification when in area where iBeacon is located
- At time of enrolment to University
- Step by Step tutorial (many unaware of the video tutorial on website)
- Demonstration to seminar tutorials (training for staff)
- Moodle

Point of contact for students in regards to Student Attendance Monitoring (SAM):

- Dedicated e-mail address for addressing enquiries (in-app capability)
- ISS Desk
- Help button in iLancaster applet for SAM
- Workshop demonstration
- Text
- Manual check-in capability (Possible use of GPS to track only for one time sign-ins so that information of location not tracked permanently)

With 45 responses out of 512 participants (Response rate: 8.79%), we were able to successfully gauge problems frequently encountered by students with the attendance monitoring pilot. It appears that many students were apprehensive in terms of attendance registration due to the doubt of whether or not their attendance has been recorded successfully although confirmation has been sent. Furthermore, some teaching staff confused students by bringing in paper sign in sheets which made students feel that it was no longer necessary to register to the attendance monitoring pilot.

At the end of the month, students were e-mailed a summary of their attendance. Due to the technical issues that sometimes occurred, the report often showed no or a partial record of students' attendance and this appeared to be a point that put students off using the app as they were not sure as to whether or not their attendance were recorded properly. 24 out of the 45 (53.3%) responses collected indicated that the Pilot was a good idea providing that it worked and adhered to the Data Protection Act 1998. The other 46.7% appeared to have a significant worry about being monitored or were apprehensive due to

- i) not knowing if their attendance had been collected (7 out of 44); or
- ii) not having the correct device (3 out of 33).

Future Directions

Before starting a new pilot project, the introductory steps would be to:

1. Send out email to participating students advising them of the project and understanding their worries
2. Assess relevance of carrying out another pilot
3. Rectify assumptions of students in regards to the pilot (i.e. does not track location unless in location where iBeacon is positioned, Bluetooth does not make battery run out faster, etc.)

The relevant steps for a future pilot project would be to:

1. Send an e-mail before the next pilot project to gauge participants view on attendance monitoring to enable clear understanding of sample participant's views and gauge potential challenges that may be faced. This would also help in engaging with participants before the start of the pilot in clearing up misunderstandings and assumptions about the pilot.
2. Assess relevance of continuing pilot project. As a pilot project provides a good platform for simulating a situation, the pilot provides a sample for improving the implementation of the system before the launch of an actual attendance monitoring system. This would

help to debug the system, if there are any and would help to interact with students better in gaining their perception, understanding and worries.

3. Address misconceptions. There is a common misconception that the University is tracking students' each and every move. However, the reality of the situation is that there needs to be an iBeacon in the proximity in order for the students' registration to be monitored. As the iBeacon does not have a long range detection, there would be limited signal and hence, no form of tracking would be done and attendance is only monitored for required modules as outlined in the course requirements. Also, a common misconception of students is that switching on the Bluetooth makes the phone battery run out faster. However, this is not true and needs to be communicated to students to ensure that their Bluetooth is switched on during class for their attendance to be collected.

A few of the concerns that students had was in terms of surveillance, one commenting specifically that any form of Orwellian type surveillance is not welcome, while another person commented on Data Protection. 2 out of 45 (4.44%) students who answered the survey worried about them being monitored out of grounds, i.e. not limited to attendance tracking. One person expressed worry about data protection (2.22%). Aside the two major concerns brought up, I'm convinced that there are no other problems that I believe would be a problem in the future except for the frustration risen from the app not actually working.

Action Plan (What could we do to ease these concerns or other problems that may arise?):

| Problem | What can we do? |
|---|--|
| Fear of being under surveillance and having actions monitored | <ol style="list-style-type: none"> 1. Create a short FAQ video to explain how the system works and also to reassure them that the only time they are being monitored is for registration purposes and only when there is an iBeacon near them when they are meant to have a class. 2. Create an FAQ section where they can read in the iLancaster app about how the system works |
| Fear of data being released to third parties or being breached | <ol style="list-style-type: none"> 1. In the FAQ video, the use of data collected from the system can be explained to students so that they know that only the appropriate party, such as for the UKBA, for use of visa monitoring and also for the university's attendance requirement reasons. |
| Fear that their attendance isn't being taken | <ol style="list-style-type: none"> 1. Explain that tutors/lecturers check to see if whether or not their attendance has been registered, so no need to worry if forgotten their phone, can't register or can't sign in, after all, this is a Pilot to identify the problems and to ensure students are happy with their attendance being monitored. |

In addition, I also recommended what we should do to ensure students get the information they need about taking part in and using the electronic attendance monitoring.

WHAT NEEDS TO BE DONE FOR STUDENTS TO RECEIVE THE RELEVANT INFORMATION REQUIRED FOR THE ELECTRONIC ATTENDANCE MONITORING?

Action plan:

1. Brief tutors/lecturers/department administration staff on how the system works and how they would be able to answer any form of problems that may have rose previously from the attendance monitoring pilot, possibly through a seminar/workshop by an ISS member of staff.
Send an e-mail to students as to what the attendance monitoring entails, how their attendance would be monitored, what they need to do, how their data is used and who they should contact if anything went wrong.
2. It would be useful if they were provided with a department administration staff's contact that they could refer to, or a member from the ISS team that would be able to answer any queries.
3. ISS Desk staff should also be briefed on this pilot as students would normally go to the desk at the learning zone if they were facing any problems with their university accounts, be it the iLancaster app or their e-mail.
4. FAQ dropdown that is easily accessible for students involved in the attendance monitoring pilot.
5. Have a booth during the registration week to enable students who will be participating in the pilot project to be immediately directed to member of staff from ISS to receive an information pack and a brief, or they can all be directed into a lecture theatre for a short talk for a brief.

Personal Development

Through participating in the attendance monitoring pilot, I have been able to be involved in a real life project and have seen the real life implications that the project has brought forth. I have never thought about attendance monitoring being a problem until participating in the project as my attendance has always been monitored as part of my course as it is accredited by the Institute of Biomedical Science (IBMS).

Being able to work with qualitative data certainly posed a series of challenges as it isn't easy to categorise data and I had to devise methods to optimise the information that were collected in a way that could then be presented for decision making. Overall, it gave me a foreground to work on a dataset which in the long run would be beneficial to the entire University, which does seem overwhelming but of which I am grateful for.

I have been able to work closely with people who have experience in the information technology (IT) field and have been provided with excellent feedback in my presentation of data. This has significantly improved the way I look at data and have helped me gauge the outlook that a lot of people have towards the internet, online security and privacy, which I have often overlooked.

The digital bursary has definitely enhanced my capabilities as a person who is interested in data analysis. Having completed my undergraduate degree, I have been able to pursue higher education in doing a Master's in Operational Research and Management Science, in which I hope to be working as an analyst and to be able to work with more complex sets of data.

Understandably, in today's information driven world, a lot of times, there are a lot of businesses that collect data for forecasting future sales and for making advertising strategies and the digital bursary has helped me in creating a stepping stone for me. I have been able to gain skill sets which I would have otherwise missed out upon by participating in the digital bursary.

Overall, I would say that I have gained an understanding of the complexity of a data, the importance of collecting consistent information, the importance of data presentation and the analysis of data for the use of making improvements and for the use in future projects that may be carried out.