**Description:**   
During the main summer exam season, due to extra time candidates and the popularity of  
certain courses, it is common for candidates of an exam to be split over multiple rooms. It is important that the invigilators in these rooms be able to communicate with one another in order to synchronise start/finish times, announce clarifications/corrections and enable examiner's to answers queries from candidates. This can be particularly troublesome in rooms with just a single invigilator. Mobile phones can sometimes be useful, but not everyone has their phone on them, not everyone knows one-another's numbers and people's phones will necessarily be on silent and so messages can easily be missed.  
  
We would like to have an app that allows for a phone or tablet in each room to be connected to a central communication server that relays messages and status information silently between the rooms.  
  
Requirements: (a partial list)  
> The system must operate silently. Candidates must not be disturbed during their exams.  
> The system should make continuous alerts so that messages are not `missed'.  
> Messages need to be receipt confirmed so that the sender knows that their message has been received.  
> Each room should have a status (e.g. stopped,under-way,assistance) displayed at all times during the exam. These status's need to update in real-time across the system.  
> The system should display a log of status changes and messages.  
> The system needs to be able to handle that examiners may be moving between rooms at any time during the exam.  
  
User Interactions: (a partial list)  
> Examiners/invigilators should be able to see at a glance which room(s) currently need assistance.  
> An invigilator needs to be able to notify the system when the exam in their room starts/stops. The room's status should be appropriately updated.  
> An invigilator needs to be able to ask for an examiner to come to their room to answer a question. Note that there may be multiple examiners for a single exam, and that multiple exams may be running in a single room.  
> An invigilator needs to be able to ask for an invigilator to assist them in their room (e.g. a candidate may need to be escorted to the bathroom).  
> An examiner/invigilator needs to be able to acknowledge that they have received a request to come to a particular room. Additionally this receipt should be broadcast so that requests are not over-serviced.  
> An examiner needs to be able to ask for an announcement to be read out in all rooms that contain a certain exam. Each room should be required to acknowledge when the announcement has been made.