Project Title
Can a mobile application assist in the safety of employees visiting service users?

Background
In many sectors there is a requirement to visit service users to conduct face to face meetings or assessments, for sectors such as the care industry or charities that provide support to exploited individuals there can often be an element of risk visiting the homes of service users. In many circumstances organisations resort to using existing implementations such as WhatsApp to track the whereabouts of their employees via text-based updates submitted in a timely manner. This often isn't practical as a long-term solution as this is often an unscalable approach and relies on the employee to be manually submit a text message, which must then be received and updated by an individual responsible for ensuring the safety of their colleagues. In order to manage risk to employees, organisations may rely on the usage of codewords or predetermined phrases to alert a colleague if they are in danger, this isn't practical as this can often increase risk in the given situation. Thus, the aim of this project is to develop an application that provides a modern approach to improve the safety of home working employees by reporting their location to a centralised database, provide an avenue for altering colleagues to any risk they face and provide an accountability trail for their day to day visits.

Objectives

To achieve the goal of this project I will complete the following objectives:
 	
• Conduct research in the following areas
  ○ Identify the best programmatic approach to the solution, such as which technologies to use.
  ○ Research the ethics of such a solution.
  ○ Research employee tracking.
  ○ Research GPS Location tracking.
  ○ Research employee safety.
  ○ Research Home Visiting.
• Architect and produce a prototype solution by writing drawing up detailed diagrams and providing thorough testing documentation.
• Produce a document recording all project related activities.

Resources
To complete this project, I will make use of the following resources, all of which are available to me: • Android Device • A computer capable of running visual studio. • C# / Xamarin • Visual Studio 2019 • A database storage facility e.g. Firebase • Staffordshire University Library   ○ Academic Journals and Papers • MS Word & Visio • Notion.so • GitHub (Version Control)

Deliverables

In this project I will deliver:
• A system specification.
• A test plan document.
• User documentation.
• A mobile application that:
  ○ Reports the GPS Location of an end user.
  ○ Allows an end user to report a risk or request assistance.
  ○ Allows the user to manually update their reviewing peer with a text status.
  ○ Allow an end user to record notes on the sites they visit for their colleagues.
  ○ Allow a reviewing colleague to review a map of their team.
  ○ Allow a reviewing colleague to acknowledge risks or requests for assistance.
  ○ Provide notifications or alerts when an employee has not checked in within their allotted timeframe.
• A Logbook of activities.
• A project report.

Ethics
There are numerous ethical considerations to be surrounding tracking employees during their day to day activities. My solution will make use of GPS tracking to monitor the position of an employee to ensure their current location is documented and matches where they are supposed to be, and that their safety is monitored by a reviewing peer. Naturally this raises concerns of employee tracking which is well discussed and often treated as 'Orwellian' therefore careful consideration will be given to the ethics of tracking an employee and providing safeguards to prevent unnecessary data collection when not attending work related meetings. Next there is the security concerns of storing the live GPS data of employees, this information will be required to be securely stored so that malicious parties are unable to obtain the data. Finally, a consideration GDPR must be made due to the requirement of the application to store user submitted flags for the sites they visit. This data must be easily reviewed and removed when necessary in order to comply with the regulations.