# Introduction

## Project Overview

## Project Objectives

# Inception

## Inspiration (possibly put what sleep apnoea is, what problem does this system solve?)

### Relevant figures?

jhjhkjh

### Self diagnostics - growing popularity

hjkhjhk

## Forming the Concept

klkll

## Assessing Possibilities

# Exploration

## Research

### Sleep apnoea facts and figures

### AHI index and Epworth Sleepiness Scale

## Conferring with Academic Mentors

## Discussion with Experts in the Medical Field

## Discussions with Relevant Technical Experts

## Field Studies

## Choosing Technologies

### (APIs vs own code (NB. no point in writing it if its already been written))

### Cost considerations?

### Current Standards (i.e. clinical tests vs my system)

## Proof of Concept

## Issues and Risks

### Hardware restrictions

#### Accelerometer Sensitivity and Restrictions

#### Synchronous Communication

#### MQTT Transmission Rate

#### Feature Trade-Off (compromising)

##### Cost considerations?

##### Prototype vs production

#### Security - root account risks + permissions

## Findings

# High Level Design

## System Architecture Diagram (VM version + Pi version)

### (steps)

## Design Methodology

## Use Cases?

# Detailed Design

## Step 1

### Component Selection and Description (Suitability)

### Settings (set up) and Calibration

### Input

### Output

### Quality Review

## Step 2

### Etc...

##### (preprocessing on pi or direct relay to MQTT)

# Implementation

## Issues Encountered and Challenges Overcome (and resolutions, work arounds)

# Testing

## System Testing

## Unit Testing

## User Testing + Questionnaires

# Results and Observations

## Introduction

## Breathing Pattern Recognition Results

# Conclusions

## Commercial System Viability

## Reflection (how did it change from beginning to end and why? if I start all over again what would I do differently?)

## What I learned from the project

# Future Work

## Future Product Evolution (ideas for features and extra functionality)

### Multi-Device Integration

## Commercialisation

### Product Lifecycle

### Production System Architecture Diagram (use of other embedded system or andriod/other languages/cloud easily scalable)

### Target Market

### Marketing ethics

## Scalability

# Appendix