**Assignment/Tutorial/Practical Report Cover Sheet**

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| Subject Code :TMP3413 | Subject Name : Software Engineering Laboratory |

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| Assignment/Tutorial/Practical Number of Title : | Project Proposal |

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| Name of Lecturer : | Mdm. Nurfauza Jali |

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| Due Date : 10 October 2014 | Date Submitted : 10 October 2014 |

This cover sheet must be completed, signed and firmly attached to the front of the submission.

All work must be submitted by the due date. If an extension of work is granted, an assignment extension acknowledgement slip must be signed by the lecturer/tutor and attached to assignment.

Please note that is your responsibility to retain copies of your assignment.

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| **MARK :** |

**Project Title:**

**Life Tree**

**Team Name:**

**D2D**

**Members**

**35657 Chai Min Chun**

**35769 Choo Ting Wei**

**36579 Lai Ted Liang**

**36709 Lim Ban Yong**

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**Abstract**

Pollution has been an issue worldwide since beginning of time. Pollution can take form of chemical substances or energy. Pollution is mainly caused by human activities although it can be caused by other factors. The effect of pollution is contamination into the natural environment and most importantly effects human health. Some contamination are so severe that caused several places inhabitable. For example, the nuclear disaster in Chernobyl has made it inhabitable for us to live in due to high nuclear radiation (Chernobyl Accident 1986, n.d.). Few attempts has been made to increase awareness via several media to fight pollution. Unfortunately the attempts failed to reach its target. Hence this the purpose of this project is to tackle the problem by creating an educational game. A combination of animation, game and education to pass the knowledge to the user.

**Background study**

Background / Literature review (pollution)

Pollution has been with us since man created the first fires during prehistoric times. It has always accompanied civilizations up till this day.

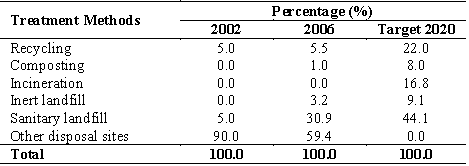
In 2012, Malaysians have produced 33 thousand tons of waste daily which exceeds 2020’s wastage estimation which is 30 thousand tons (2012 solid waste exceeds projected, 2013). The solid waste treatment methods using recycling was targeted to achieve 22% in 2020 (Samsudin and Don, 2013).

The bearable levels of human hearing is from 0 to 120dB. However it is dangerous and damaging for a person to be exposed to sounds greater than 85dB level of sound for over 8 hour (How much decibel is acceptable, n.d.).

The river status, based on water quality index (WQI), clean, slightly polluted and polluted for 81-100, 60-80 and 0-59 respectively. Based on the analysis of rivers on the eastern part of peninsular Malaysia, around Gebeng areas including Tunggak River, out of ten rivers being investigated eight of them are highly polluted (Hossain, Sujaul and Nasly, 2013).

|  |  |
| --- | --- |
| **Air Quality Index (AQI) Values** | **Levels of Health Concern** |
| ***When the AQI is in this range*:** | ***..air quality conditions are:*** |
| **0-50** | **Good** |
| **51-100** | **Moderate** |
| **101-150** | **Unhealthy for Sensitive Groups** |
| **151 to 200** | **Unhealthy** |
| **201 to 300** | **Very Unhealthy** |
| **301 to 500** | **Hazardous** |

Source: (Air Quality Index, 2014)



Source: (Samsudin and Don, 2013)

Life Tree is inspired by another tower defence game titled Defender II. Life Tree is built on XNA and originally founded by Elton and his teammates to join windows Imagine Cup. After the competition, the game passed to us for conversion and extension. However they took agile method, hence there is no documentation on Life Tree. After studied through their codes, the game engine used is incompatible with Android platform. We ended up using another game engine and algorithm to make it work on the Android platform. Only some the resources (images and sounds) are reused in this project.

**Problem Statement**

Pollution has accompanied man for decades, however not many action is taken mitigate the pollution at hand. One of the reason is that people lack of the knowledge to solve this matter.

In previous attempts, cartoons is imposed to raise awareness about pollution to young generations via television. Perhaps the most popular of these is to teach youngsters in their early education. Unfortunately these attempts seems to have filed to raise public awareness regarding pollution.

Earth is dying due to this pollutions. Action is needed so as our Earth is to remain clean and safe to life in for all species.

**Objectives**

* To increase the awareness of pollution.
* Help to decrease / maintain the air pollution index (API) between 0 - 50.
* Help to increase / maintain the water quality index (WQI) between 80 - 100.
* Help to maintain the noise pollution between 55dB – 70dB within residential area.
* Help to reduce / maintain the numbers of solid waste to 30,000 tons before 2020.
* Help to increase percentage the waste treatment methods by using recycle to 22% in 2020.
* To promote the 3R (Reduce, Reuse, Recycle) concept to citizens.

**Scope**

This game only supports Android-powered smartphones/tablets (v4.0 and above) and optimized for screen resolution of 800x480. Its user interface includes shop to buy items, setting scene, world/level selection scene, gameplay scene, pause scene, game complete scene, game over scene, and tutorial scene.

**Task allocation**

|  |  |
| --- | --- |
| Roles | Member |
| Team Leader | Chai Min Chun |
| Development Manager | Lai Ted Liang |
| Planning Manager | Choo Ting Wei |
| Quality Manager | Willis Fung Shin Choi |
| Test Manager | Lim Ban Yong |
| Support Manager | Lim Ban Yong |
| Process Manager | Willis Fung Shin Choi |

**Project Goal**

**Reducing the negative impact of environment pollution such as air pollution, noise pollution, water pollution, and solid waste. Promote the 3R (Reduce, Reuse, Recycle) concept to citizens by using interesting android game.**

**Team Goal**

**Develop an interesting android game in a team. Team members are able to communicate well with each other throughout the project. Team members are able to learn the skills and gain experiences through developing a game. For example, team members are able know the correct way for documentation, version control and enhance programming skills.**

**Team Contribution**

|  |  |
| --- | --- |
| Team Leader | * Lead project team towards the same goal * Delegate tasks and monitor team members’ work flow * Be responsible for any preparation that team members required * Pay attention to team members’ feedback |
| Development Manager | * Show developed results to customer to ensure the software always meet customers’ requirement. * Manage the development team to work efficiently |
| Planning Manager | * Monitor every department expenses * Assist team members to manage all production schedules * Arrange well-organized training programs for all planning processes * Cooperate with all stakeholders to come out with a different strategy |
| Quality Manager | * Ensure project achieves the project goal * Advise the performance of quality management system * Ensure project meets customer requirement |
| Test Manager | * Confirm the suitable planning and management of the test effort * Evaluate the progress and efficiency of the test effort * Discuss the deliverables of the test effort |
| Support Manager | * Manage technical and information system * Manage the maintenance and security issues * Supervise the performance of team members and the system |
| Process Manager | * Assist team to review current processes for efficiency * Improve operational effectiveness * Produce process workflow |

**Expected Result**

1. Outputs - runnable android game.

2. Outcomes -Able to deliver the message that our environment is sick and action needed to be taken to overcome the effect of the pollution.

3. Impact -Environment thought is implanted

**Checklist**

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| **Features** | **Defender II** | **Life Tree** |
| Straight-line projectile |  |  |
| Bounce projectile (within boundary) |  |  |
| World selection |  |  |
| Level selection |  |  |
| Skills |  |  |
| Shop |  |  |
| Monster take damage upon hit and attribute |  |  |
| Story |  |  |
| Mix of attributes |  |  |

Sample screenshot(left: Defender II; right; Life Tree)

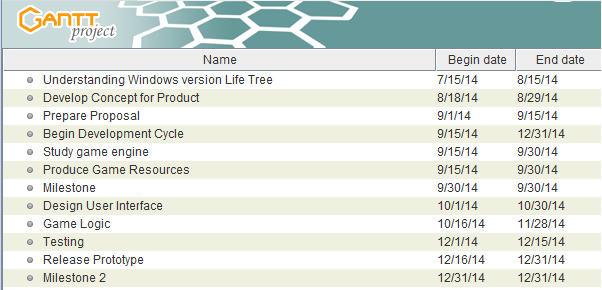


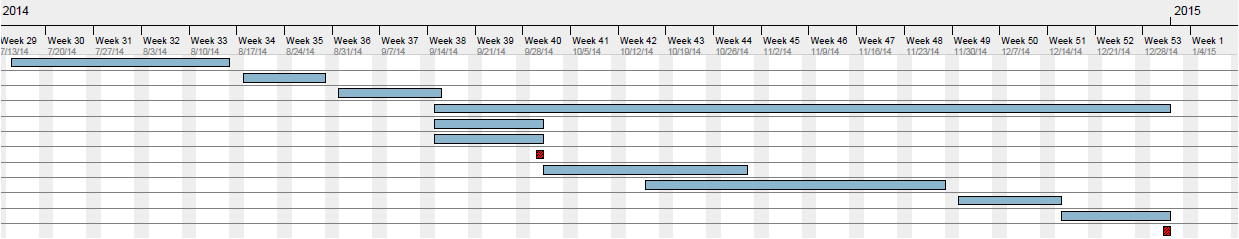






**Project Planning**

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