Project Proposal

AR 3d ZOMBIE SHOOTING GAME

By

Shamoon Roll No : BCSF16E062

Kashif Waqas Roll No : BCSF16E043

Project Manager:

Mr. Fahad Maqbool

Abstract:

In this world full of ease provided by Information Technology, how could we ignore this amazing technique called, Augmented Reality.

We are up with an idea that surely needs to get some attention in Pakistan but unfortunately we remain behind.

Augmented Reality is a technique used to get the same environment on your device's screen where you are right now. Where ever you are, all you need is to open the app and start enjoying your actual environment virtually. Your surroundings become your environment and appear on your screen.

Idea is to develop a game called, that will use the Augmented Reality. The Game is about a hero who saves the world from some zombies' attack. The user will open the app, using webcam technique the environment in front of him and then there comes the attackers trying to kill the users. The user will then shoot out the enemies by firing them with a gun.

Background:

Augmented reality is a view of the real, physical world in which elements are enhanced by computer-generated input. These inputs may range from sound to video, to graphics to GPS overlays and more. The first conception of augmented reality occurred in a novel by Frank L Baum written in 1901 in which a set of electronic glasses mapped data onto people; it was called a **character marker**. Today, augmented reality is a real thing and not a science-fiction concept.

Goals:

The Project comes with a sweet goal and maybe that is what we lack most of the times. It aims to ENTERTAIN the users anytime anywhere.

Our project will investigate to develop an affordable and advanced gaming AR system using mass-market mobile devices such as smart phones and tablets, while the basic idea and the concept for the system are based on the original gaming system.

Objectives:

The technological objectives of game include:

- Hybrid tracking for mobile phones / tablets for gaming use.
- Adequate game interaction techniques.
- Rendering of the virtual objects on the mobile devices.
- Multi-user interaction environment.

Hardware and Software Specifications:

Hardware:

It can run on some of the mobile phones having Augmented Reality compatibility both android and IOS devices.

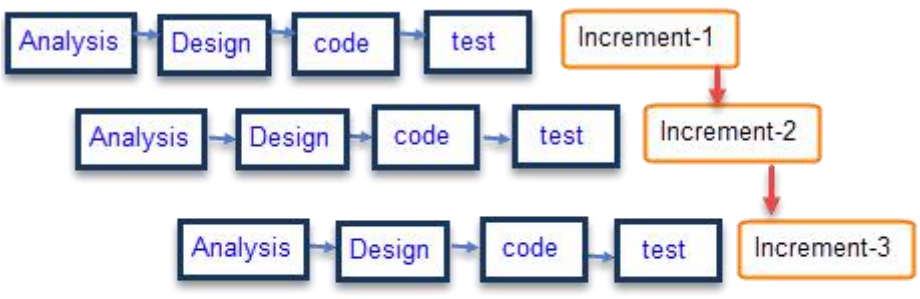
Software:

Unity (2018.3.0)

Microsoft Word, MS Excel, PowerPoint, Visual Studio.

Project Methodology:

System Development Life Cycle (SDLC) phases are appropriate for the creation of this app. As there is a proper way and vision for the creation of this app. SDLC phases such that Requirement gathering, Analysis, Designing, Coding, Testing, Implement are appropriate for it. After gathering requirement relating to it, these requirements will be analyzed and further designed. After coding and testing this app will be able to continue further. As we are making a machine AR-based shooting game so it requires a lot of back testing to ensure our model is working properly so we will use the incremental model. After getting the requirement model is trained based on requirement and tested. If the trained model works properly then we will make and publish the game otherwise redo the training.



Incremental Model

Economic Feasibility:

Our project total cost is approximately Rs.5000/- but we divided our cost estimation in following three stages of COCOMO Model.

Stage-I:

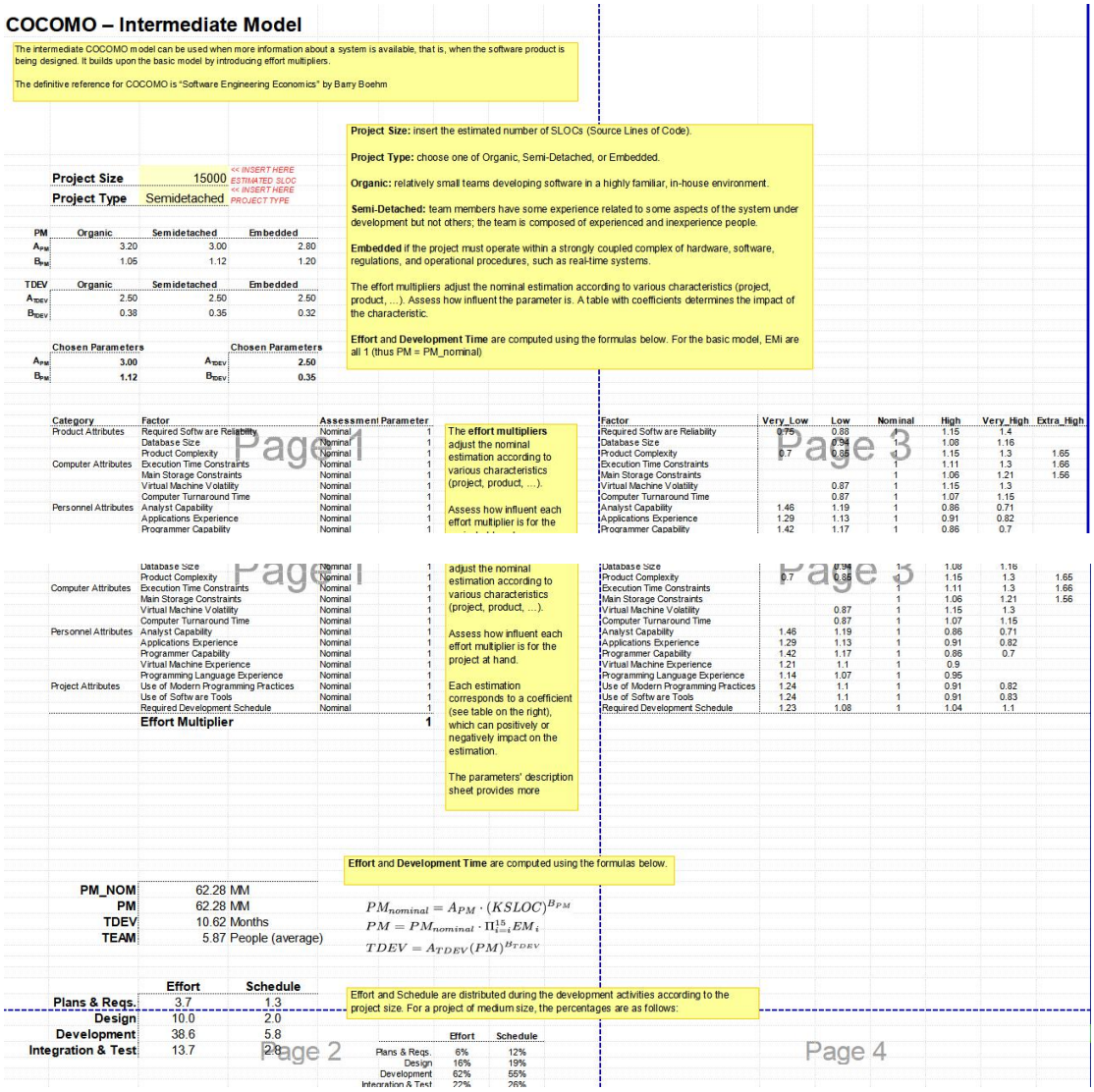
The estimation cost of prototyping model is approximately Rs.2000/-, For this We uses Application Composition Estimation Model. This model is used for the prototyping stage of application generator and system integration.

Stage-II:

The estimation cost in the early design stage of the our project is approximately Rs.1000/-, For this we uses Early Design Estimation Model. This model is used in early design stage of application generators, infrastructure, system integration**.**

Stage-III:

The estimation cost in the post architecture stage of a project is approximately Rs.2000/-, For this We uses Post Architecture Estimation Model. This model is used after the completion of the detailed architecture of application generator, infrastructure, system integration**.**



COCOMO – Intermediate Model

The intermediate COCOMO model can be used when more information about a system is available, that is, when the software product is being designed. It builds upon the basic model by introducing effort multipliers.

The definitive reference for COCOMO is "Software Engineering Economics" by Barry Boehm

Project Size: insert the estimated number of SLOCs (Source Lines of Code).

Project Type: choose one of Organic, Semi-Detached, or Embedded.

Organic: relatively small teams developing software in a highly familiar, in-house environment.

Semi-Detached: team members have some experience related to some aspects of the system under development but not others; the team is composed of experienced and inexperience people.

Embedded if the project must operate within a strongly coupled complex of hardware, software, regulations, and operational procedures, such as real-time systems.

The effort multipliers adjust the nominal estimation according to various characteristics (project, product, ...). Assess how influent the parameter is. A table with coefficients determines the impact of the characteristic.

Effort and **Development Time** are computed using the formulas below. For the basic model, EMi are all 1 (thus PM = PM_nominal)

Project Size	15000	<< INSERT HERE ESTIMATED SLOC
Project Type	Semidetached	<< INSERT HERE PROJECT TYPE

PM	Organic	Semidetached	Embedded
A_{PM}	3.20	3.00	2.80
B_{PM}	1.05	1.12	1.20

TDEV	Organic	Semidetached	Embedded
A_{TDEV}	2.50	2.50	2.50
B_{TDEV}	0.38	0.35	0.32

Chosen Parameters		Chosen Parameters	
A_{PM}	3.00	A_{TDEV}	2.50
B_{PM}	1.12	B_{TDEV}	0.35

Category	Factor	Assessment	Parameter
Product Attributes	Required Softw are Reliability	Nominal	1
	Database Size	Nominal	1
	Product Complexity	Nominal	1
Computer Attributes	Execution Time Constraints	Nominal	1
	Main Storage Constraints	Nominal	1
	Virtual Machine Volatility	Nominal	1
	Computer Turnaround Time	Nominal	1
Personnel Attributes	Analyst Capability	Nominal	1
	Applications Experience	Nominal	1
	Programmer Capability	Nominal	1
	Virtual Machine Experience	Nominal	1
	Programming Language Experience	Nominal	1
Project Attributes	Use of Modern Programming Practices	Nominal	1
	Use of Softw are Tools	Nominal	1
	Required Development Schedule	Nominal	1
	Effort Multiplier		**1**

The **effort multipliers** adjust the nominal estimation according to various characteristics (project, product, ...).

Assess how influent each effort multiplier is for the project at hand.

Each estimation corresponds to a coefficient (see table on the right), which can positively or negatively impact on the estimation.

The parameters' description sheet provides more

Factor	Very_Low	Low	Nominal	High	Very_High	Extra_High
Required Softw are Reliability	0.75	0.88	1	1.15	1.4	
Database Size		0.94	1	1.08	1.16	
Product Complexity	0.7	0.85	1	1.15	1.3	1.65
Execution Time Constraints			1	1.11	1.3	1.66
Main Storage Constraints			1	1.06	1.21	1.56
Virtual Machine Volatility		0.87	1	1.15	1.3	
Computer Turnaround Time		0.87	1	1.07	1.15	
Analyst Capability	1.46	1.19	1	0.86	0.71	
Applications Experience	1.29	1.13	1	0.91	0.82	
Programmer Capability	1.42	1.17	1	0.86	0.7	
Virtual Machine Experience	1.21	1.1	1	0.9		
Programming Language Experience	1.14	1.07	1	0.95		
Use of Modern Programming Practices	1.24	1.1	1	0.91	0.82	
Use of Softw are Tools	1.24	1.1	1	0.91	0.83	
Required Development Schedule	1.23	1.08	1	1.04	1.1	

Effort and **Development Time** are computed using the formulas below.

PM_NOM	62.28 MM
PM	62.28 MM
TDEV	10.62 Months
TEAM	5.87 People (average)

$$PM_{nominal} = A_{PM} \cdot (KSLOC)^{B_{PM}}$$
$$PM = PM_{nominal} \cdot \Pi_{i=i}^{15} EM_i$$
$$TDEV = A_{TDEV}(PM)^{B_{TDEV}}$$

	Effort	Schedule
Plans & Reqs.	3.7	1.3
Design	10.0	2.0
Development	38.6	5.8
Integration & Test	13.7	2.8

Effort and Schedule are distributed during the development activities according to the project size. For a project of medium size, the percentages are as follows:

	Effort	Schedule
Plans & Reqs.	6%	12%
Design	16%	19%
Development	62%	55%
Integration & Test	22%	26%

Legal Feasibility:

Augmented Reality will influence society as fundamentally as the Internet itself has done, and such a powerful medium cannot help but radically affect the laws and norms that govern society. No author is as uniquely qualified to provide a big-picture forecast and guidebook for these developments as Brian Wassom. A practicing attorney, he has been writing on AR law since 2007 and has established himself as the world's foremost thought leader on the intersection of law, ethics, privacy, and AR. Augmented Reality professionals around the world follow his Augmented Legality® blog. This book collects and expands upon the best ideas expressed in that blog, and sets them in the context of a big-picture forecast of how AR is shaping all aspects of society.

Time Feasibility:

Our "**AR 3d ZOMBIE SHOOTING GAME**" is require approximately 7 months to complete ,we try to complete our project within this time span .