EAST WEST UNIVERSITY

Assignment 02

Next-Gen Shopping: Augmented Reality Meets Retail

Course Code: CSE495

Course Title: IT Project Management and Enterpreneurship

Section: 05

Submitted By,

Group: Delta

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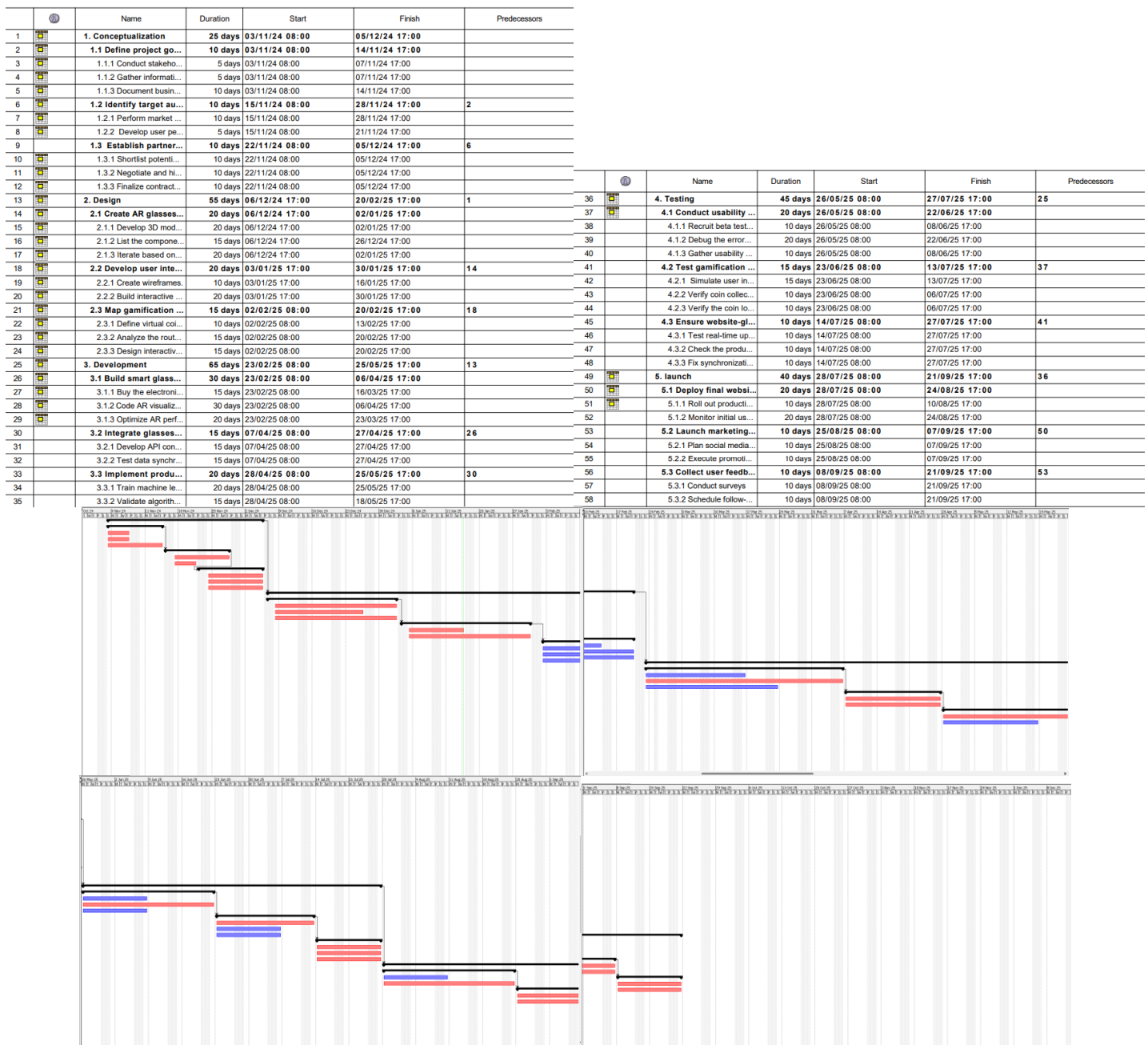A.B.M. Ilman Farabi
2021-3-60-111

Submitted to,

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Gantt Chart:

#	Name	Duration	Start	Finish	Predecessors
1	1. Conceptualization	25 days	03/11/24 08:00	05/12/24 17:00	
2	1.1 Define project go...	10 days	03/11/24 08:00	14/11/24 17:00	
3	1.1.1 Conduct stakeho...	5 days	03/11/24 08:00	07/11/24 17:00	
4	1.1.2 Gather informati...	5 days	03/11/24 08:00	07/11/24 17:00	
5	1.1.3 Document busin...	10 days	03/11/24 08:00	14/11/24 17:00	
6	1.2 Identify target au...	10 days	15/11/24 08:00	28/11/24 17:00	2
7	1.2.1 Perform market ...	10 days	15/11/24 08:00	28/11/24 17:00	
8	1.2.2 Develop user pe...	5 days	15/11/24 08:00	21/11/24 17:00	
9	1.3 Establish partner...	10 days	22/11/24 08:00	05/12/24 17:00	6
10	1.3.1 Shortlist potenti...	10 days	22/11/24 08:00	05/12/24 17:00	
11	1.3.2 Negotiate and hi...	10 days	22/11/24 08:00	05/12/24 17:00	
12	1.3.3 Finalize contract...	10 days	22/11/24 08:00	05/12/24 17:00	
13	2. Design	55 days	06/12/24 17:00	20/02/25 17:00	1
14	2.1 Create AR glasses...	20 days	06/12/24 17:00	02/01/25 17:00	
15	2.1.1 Develop 3D mod...	20 days	06/12/24 17:00	02/01/25 17:00	
16	2.1.2 List the compone...	15 days	06/12/24 17:00	26/12/24 17:00	
17	2.1.3 Iterate based on...	20 days	06/12/24 17:00	02/01/25 17:00	
18	2.2 Develop user inte...	20 days	03/01/25 17:00	30/01/25 17:00	14
19	2.2.1 Create wireframes.	10 days	03/01/25 17:00	16/01/25 17:00	
20	2.2.2 Build interactive ...	20 days	03/01/25 17:00	30/01/25 17:00	
21	2.3 Map gamification ...	15 days	02/02/25 08:00	20/02/25 17:00	18
22	2.3.1 Define virtual coi...	10 days	02/02/25 08:00	13/02/25 17:00	
23	2.3.2 Analyze the rout...	15 days	02/02/25 08:00	20/02/25 17:00	
24	2.3.3 Design interactiv...	15 days	02/02/25 08:00	20/02/25 17:00	
25	3. Development	65 days	23/02/25 08:00	25/05/25 17:00	13
26	3.1 Build smart glass...	30 days	23/02/25 08:00	06/04/25 17:00	
27	3.1.1 Buy the electroni...	15 days	23/02/25 08:00	16/03/25 17:00	
28	3.1.2 Code AR visualiz...	30 days	23/02/25 08:00	06/04/25 17:00	
29	3.1.3 Optimize AR perf...	20 days	23/02/25 08:00	23/03/25 17:00	
30	3.2 Integrate glasses...	15 days	07/04/25 08:00	27/04/25 17:00	26
31	3.2.1 Develop API con...	15 days	07/04/25 08:00	27/04/25 17:00	
32	3.2.2 Test data synchr...	15 days	07/04/25 08:00	27/04/25 17:00	
33	3.3 Implement produ...	20 days	28/04/25 08:00	25/05/25 17:00	30
34	3.3.1 Train machine le...	20 days	28/04/25 08:00	25/05/25 17:00	
35	3.3.2 Validate algorith...	15 days	28/04/25 08:00	18/05/25 17:00	
36	4. Testing	45 days	26/05/25 08:00	27/07/25 17:00	25
37	4.1 Conduct usability ...	20 days	26/05/25 08:00	22/06/25 17:00	
38	4.1.1 Recruit beta test...	10 days	26/05/25 08:00	08/06/25 17:00	
39	4.1.2 Debug the error...	20 days	26/05/25 08:00	22/06/25 17:00	
40	4.1.3 Gather usability ...	10 days	26/05/25 08:00	08/06/25 17:00	
41	4.2 Test gamification ...	15 days	23/06/25 08:00	13/07/25 17:00	37
42	4.2.1 Simulate user in...	15 days	23/06/25 08:00	13/07/25 17:00	
43	4.2.2 Verify coin collec...	10 days	23/06/25 08:00	06/07/25 17:00	
44	4.2.3 Verify the coin lo...	10 days	23/06/25 08:00	06/07/25 17:00	
45	4.3 Ensure website-gl...	10 days	14/07/25 08:00	27/07/25 17:00	41
46	4.3.1 Test real-time up...	10 days	14/07/25 08:00	27/07/25 17:00	
47	4.3.2 Check the produ...	10 days	14/07/25 08:00	27/07/25 17:00	
48	4.3.3 Fix synchronizati...	10 days	14/07/25 08:00	27/07/25 17:00	
49	5. launch	40 days	28/07/25 08:00	21/09/25 17:00	36
50	5.1 Deploy final websi...	20 days	28/07/25 08:00	24/08/25 17:00	
51	5.1.1 Roll out producti...	10 days	28/07/25 08:00	10/08/25 17:00	
52	5.1.2 Monitor initial us...	20 days	28/07/25 08:00	24/08/25 17:00	
53	5.2 Launch marketing...	10 days	25/08/25 08:00	07/09/25 17:00	50
54	5.2.1 Plan social media...	10 days	25/08/25 08:00	07/09/25 17:00	
55	5.2.2 Execute promoti...	10 days	25/08/25 08:00	07/09/25 17:00	
56	5.3 Collect user feedb...	10 days	08/09/25 08:00	21/09/25 17:00	53
57	5.3.1 Conduct surveys	10 days	08/09/25 08:00	21/09/25 17:00	
58	5.3.2 Schedule follow-...	10 days	08/09/25 08:00	21/09/25 17:00	

Software Costing:

Our project is semidetached model as it involves moderate complexity related to AR, AI integration and gamification. The KLOC of this project is 50 and thus it aligns with the project's medium size. Our team has mixed experience levels.

$$\text{Effort(Person-Months)} = 3.0 \times (\text{KLoc})^{1.12}$$

$$= 3.0 \times (50)^{1.12}$$

$$= 189.3 \text{ Person-Months}$$

Development Time(Months)= $2.5 \times (\text{Effort})^{0.35}$

$$= 2.5 \times (189.3)^{0.35}$$

$$= 16.5 \text{ Months}$$

Our time is already fixed at 9months and thus we need to increase staffs and workloads.

Team Size = Effort/Duration

$$= 189.3/9$$

$$= 21 \text{ Persons}$$

Labor Costs

Role	Monthly Salary (BDT)	Team Size	Duration (Months)	Total Cost (BDT)
Project Manager	75,000	1	9	675,000
Developers	50,000	10	9	4,500,000
Designers	40,000	5	9	1,800,000
QA Testers	40,000	3	4 (active months)	480,000
Total Labor Cost				**7,455,000**

Other Development Costs

Item	Cost (BDT)
Development Tools	200,000
Software Licenses	150,000
Third-Party APIs and Integrations	70,000
Cloud Services/ Hosting Fees	30,000
Servers	120,000
Workstations/Computers	80,000
Networking Equipment	30,000
Accessories	20,000
Online Advertising	70,000
Offline Promotions	30,000
Branding and Design	20,000
Events/Workshops	30,000
Miscellaneous Expenses	20,000

Item	Cost (BDT)
Total Other Costs	870,000

Contingency Reserve

Category	Cost (BDT)
Risk Mitigation (10%)	1,000,000
Total Contingency	1,000,000

Grand Total

Category	Cost (BDT)
Labor Costs	7,455,000
Other Development Costs	870,000
Contingency Cost	1,000,000
Grand Total	9,325,000

Next Gen Shopping	
Income Statement	
For the Year Ending 31st December, 2025	
Total Revenue	14,000,000
Cost of Goods Sold	1,000,000
Gross Profit	13,000,000
Operating Expenses	
Payroll	7,455,000
Development Tools	200,000
Software Licenses	150,000
Third Party APIs and Integrations	70,000
Cloud Service/ Hosting Fees	30,000
Servers	120,000
Workstations/ Computers	80,000
Networking Equipment	30,000
Accessories	20,000
Online Advertisement	70,000
Offline Promotions	30,000
Branding and Design	20,000
Events/ Workshops	30,000

Miscellaneous Expenses	20,000
Contingency Reserve	1,000,000
Total Other Costs	9,325,000
Interest	1,000,000
Tax (15%)	401,250
Net Profit	1373750

Revenue:

Generated by monthly Software Service (Domestic & Globally) and Product Sell Revenue = 13,000,000

BDT COGS = 1,000,000 BDT

Net Profit Margin = (R - CGS - OPE - OTE - I - T)/R * 100

$$=((14,000,000 - 1,000,000 - 9,325,000 - 0 - 1000000 - 401,250)/ 14,000,000) *100$$

$$= 16.24 \%$$

Where,

R = Revenue,

CGS = Cost of Goods sold,

OPE = Operating Expenses,

OTE = Other expenses,

I = Interest,

T = Tax

Revised Budget:

Total Cost – Budget = (9,325,000+1,000,000 + 401,250) – 10,000,000

$$= 726,250$$

726,250 Taka was spent extra for the project and thus a little over budget.

CPM:
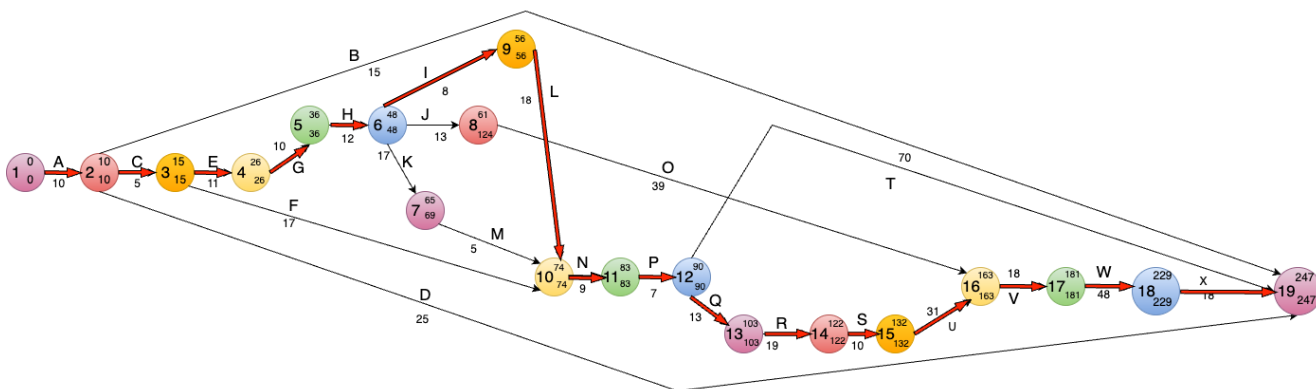
Final Project Charter:

Project Organization

Project Title	Next-Gen Shopping: Augmented Reality meets Retail		
Project Manager	Tasfia Tahsin Annita	Project Sponsor	Deepak Chandra Roy
Project Start Date	01/11/2024	Project End Date	21/09/2025

Business need

The project aims to achieve a revolutionized retail shopping experience by fusing augmented reality (AR) and personalized shopping assistance. The customers are going to experience an engaging, uninterrupted and interactive environment with AR-driven product visualization and gamified discounts, ultimately boosting both customer satisfaction and retail sales.

Key Stakeholders

Name	Department	Internal/External
Retail Shop Owners	Retail	External
Customers Utilizing Smart Glasses	Retail	External
AR Software Developers	CSE	Internal
Marketing and Analytics Teams	Marketting	Internal

Project Team

Name	Department	ID	Role
Tasfia Tahsin Annita	CSE	2021-3-60-031	Project Manager
B. M. Shahria Alam	CSE	2021-3-60-016	Developer
Rafsun Islam Taskin	CSE	2021-3-60-024	Designer
A.B.M. Ilman Farabi	CSE	2021-3-60-111	QA Tester

Project Overview

Next-Gen Shopping: Augmented reality meets retail project aims to bring revolution to the retail experience by integrating augmented reality and personalized shopping assistance. Customers will get an engaging and uninterrupted environment with interactive product visualizations and gamified discounts, boosting both satisfaction and sales.

Success Metrics

Owner	Goal	How will we measure?
Development Team	Achieve 20% sales increase	Sales analytics from the website
QA Team	Ensure 90% system reliability	User feedback and bug reports
Marketing Team	Drive 30% in-store engagement	Foot traffic and interaction rates

Scope of Work

In-Scope	
Owner/Team	Description
Development Team	Development of Smart glasses' AR application
Integration Team	Website with detailed product visualization and analytics
Gamification Team	Integration of gamified elements for customer engagement

Out of Scope	
Owner/Team	Description
Hardware Team	Developing Physical retail space hardware
Third-Party Integration Team	Integration with third-party e-commerce platforms

Deliverables

Development Team	
Dates	Event
Within 3rd Month	AR glass prototype completion

Integration Team	
Dates	Event
Within 4th Month	Website and glasses integration

QA Team	
Dates	Event
Within 6th Month	Gamification Features Testing

Dependencies

Assumptions
Availability of AR hardware from external vendors.
Timely development of the website and backend integration.
Collaboration with marketing teams for promotional campaigns.
Feedback from beta testers for refining the product.
Support from retail partners to ensure seamless integration of product details.

Financials

Allocated Budget	Date of Allocation	Revised Budget
10,000,000/- (Ten Million BDT)	05/11/2024	726,250BDT Over Budget

Milestones

Duration	Event	Target Completion Date	Actual Date
Month 1	Requirement Gathering	05/12/2024	02/12/2024
Month 3	Prototype design and development	05/02/2025	20/02/2025
Month 6	User Testing and Feedback	05/05/2025	27/07/2025
Month 9	Final Product launch	05/08/2025	21/09/2025

Risks & Issues

Potential Risk	Perceived Impact	Mitigation Strategy
AR Hardware Availability	High	Pre-order Critical components early
Budget Constraints	Medium	Secure additional funding sources
Limited User Engagement	High	Design interactive tutorials

Sign-Off

Approved By	Date	Name
Project Sponsor	05/11/2024	Deepak Chandra Roy
Project Manager	05/11/2024	Tasfia Tahsin Annita