Project Code :	BITU 2913

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

UNIVERSITI TEKNIKAL MALAYSIA MELAKA
FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

WORKSHOP 1
PROPOSAL FORM
[Incomplete form will be rejected]

A	**TITLE OF PROPOSED PROJECT: FITNESS MEASUREMENT SYSTEM** *Tajuk projek yang dicadangkan :* **Project Domain:** *Domain Projek:* ■ BUSINESS & SERVICES ☐ HEALTHCARE ☐ TRANSPORTATION ☐ COMMUNITY SERVICESS ☐ AUTOMOTIVE ☐ AGRICULTURE ☐ OTHERS : _____ :
B	**DETAILS OF STUDENT** / *MAKLUMAT PELAJAR*
B(i)	**Name of Student: Identity card no.:MUHAMMAD DANISH FARHAN BIN HAIRULRIZAM** *Nama Pelajar:No. Kad Pengenalan :* ***040827160149*** Student matric no.: ***No. Matrik Pelajar :B032310702*** **Programming Technique (BITP 1113) Grade** : Gred Teknik Pengaturcaraan (BITP 1113) : ☐ A ☐ A- ■ B+ ☐ B ☐ B- ☐ C+ ☐ C ☐ C- ☐ D
B(ii)	**Correspondence Address : C-03-29 PANGSAPURI TAMAN DAMAI MEWAH B, TAMAN DAMAI MEWAH 43000 KAJANG SELANGOR** *Alamat Surat Menyurat :*
B(iii)	**Course:** *Kursus:* ☐ BITC ☐ BITZ ☐ BITE ■ BITI ☐ BITM ☐ BITS ☐ BITD
B(iv)	**Home Telephone No.: -** *No. Telefon Rumah:* **Handphone No.: 017-2247255** *No. Telefon Bimbit:*

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C	**PROJECT INFORMATION /** *MAKLUMAT PROJEK*
C(i)	**Duration of this project:** *Tempoh masa projek ini:* **Duration: 15 WEEKS** *Tempoh* : **From : 14/10/2024** *Dari* : **To : 17/1/2025** *Hingga* :
C(v)	**Executive Summary of Project Proposal (maximum 300 words)** **(Please include the background of project, problem statements, objectives, scope and project significance from the project)** *Ringkasan Cadangan Eksekutif Projek (maksima 300 patah perkataan)* *(Meliputi latar belakang projek, penyataan masalah, objektif dan kepentingan projek)* This project aims to develop a Footballer Fitness Measurement System using C++ with Oracle APEX for managing player fitness data. The system will track important fitness metrics such as heart rate, speed, stamina, and endurance. It will also provide AI-driven insights to help improve player performance and prevent injuries. **Background**: In today's football world, maintaining player fitness is very important, but traditional methods of tracking fitness are often done manually, taking a lot of time and effort. These methods can also lack accuracy, leading to poor decisions in training and increased injury risks. **Problem Statement**: Coaches and managers often rely on subjective opinions rather than data when evaluating a player's fitness, which can lead to ineffective training plans. Current systems for tracking fitness data are also not integrated, making it hard to monitor long-term progress and prevent injuries. **Objectives:** To developed a fitness tracking system that allows players to log their daily exercise and health data. The system uses AI to analyse the data and provide personalized training advice based on each player's fitness level. It also designed a simple, easy-to-use interface where both players and managers can view and track performance, helping them monitor progress and adjust training plans for better results. **Scope**: The system will allow players to enter their fitness information and track their progress. Managers and coaches can view both individual and team fitness data, make adjustments to training, and generate reports. Admin staff will manage user accounts and system settings. **Project Significance**: This system will help improve the overall management of player fitness, allowing teams to make data-driven decisions. By providing AI recommendations, it will help optimize player performance, reduce injury risks, and modernize fitness tracking in football teams.

C(vi)

Detailed proposal of project:
Cadangan maklumat projek secara terperinci:

(a) Project background including Introduction and Problem Statements
Keterangan latar belakang projek termasuk pengenalan dan penyataan masalah.

1. *Introduction*

   In professional football, traditional fitness monitoring methods are often manual and inefficient, leading to inconsistent performance and higher injury risks. This project aims to develop a Footballer Fitness Measurement System using C++ and Oracle APEX to track key fitness metrics like heart rate, speed, stamina, and endurance. The system will provide an easy-to-use interface for players and managers to access and manage fitness data. With AI and machine learning, the system will offer personalized training recommendations, improving performance, decision-making, and reducing injury risks.

2. *Problem Statements*

   In modern professional football, maintaining peak fitness is crucial for player performance, but traditional methods of tracking fitness are manual, time-consuming, and lack precision. Coaches often rely on subjective judgments, which can lead to inefficient training, higher injury risks, and inconsistent performance. Current fitness data systems are also fragmented, making it difficult to track progress and make informed decisions.

   There is a growing need for an integrated system that not only tracks player fitness metrics but also uses AI to provide real-time insights. By automating data analysis with AI and machine learning, personalized training recommendations can optimize player performance and reduce injury risks. A user-friendly interface for both players and managers would enhance fitness management, making decisions more effective and boosting overall team performance.

(b) Objective (s) of the Project
Objektif Projek

Example /*Contoh:*

This project embarks on the following objectives:

1. *Develop a robust C++ application integrated with Oracle Apex to efficiently track and manage football player fitness data.*
2. *Design a user-friendly interface that allows both player and managers to input, view and analyze fitness metrics.*
3. *Leverage AI algorithms to deliver personalized fitness recommendations, aimed at optimizing player performance and reducing injury risks.*
4. *Empower managers to make data-driven decisions based on Ai-driven analysis, thereby enhancing the overall fitness management of the team*

(c) Scope
Skop

1. *Target User:*

   Football players will be able to log in to system to input their daily fitness metrics, monitor their progress over time, and receive AI-driven personalized fitness recommendations to enhance performance and prevent injury.

   Managers will access the system to view the fitness data of individual players and the entire team, utilizing AI-driven insights to make informed decisions about training schedules, player workload and overall fitness management.

2. *Module to be developed:*

   The system will store player details, including position and historical fitness data, while providing a dashboard for players to track key metrics like heart rate, speed, stamina, and endurance over time.

   Players and managers can input or update fitness measurements after training and matches, with the option to integrate wearable devices for automatic data capture.

   AI and machine learning will analyze historical fitness data to provide personalized training recommendations, predict injury risks, and offer preventive insights to optimize performance.

   Managers can monitor the entire team's fitness in real-time, receiving AI-generated reports on trends and risks. Secure login and access rights will ensure data privacy, with players accessing only their data and managers overseeing the team.

(d) Problem Decomposition Description
Deskripsi Penguraian Masalah

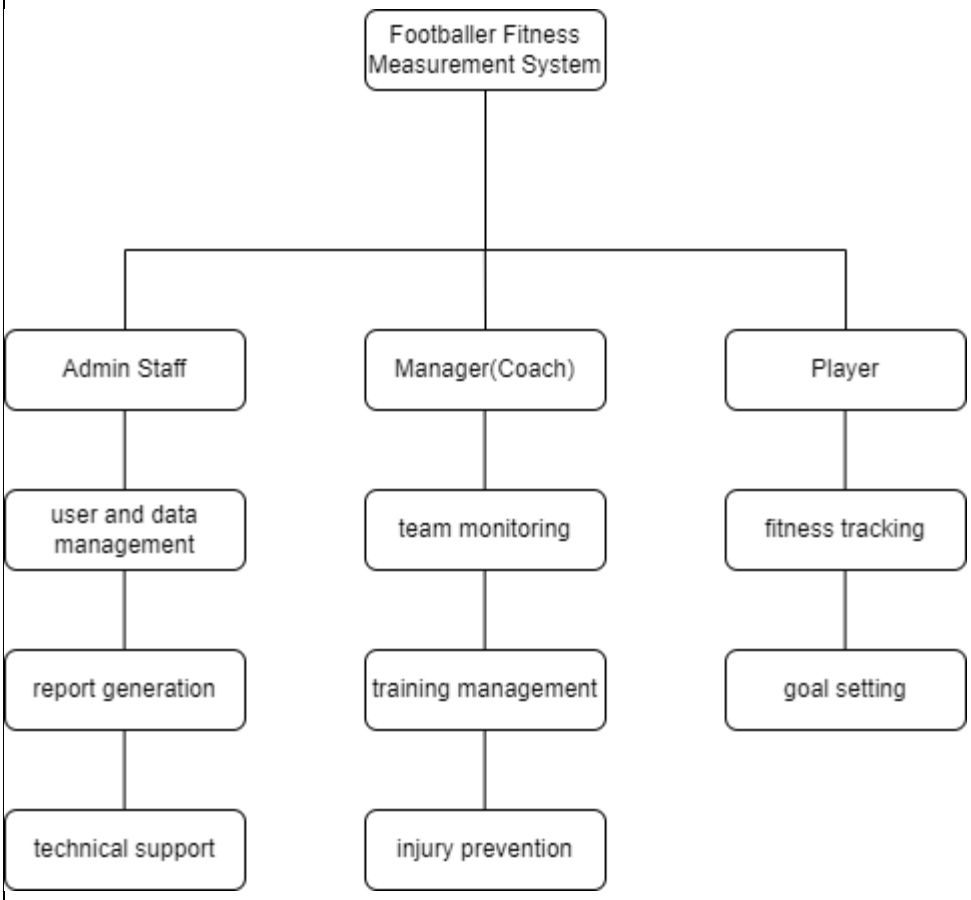
*1. **Data Collection**: Develop a user-friendly interface for manual input and integrate wearables for accurate, automated fitness data capture.*

*2. **Data Management**: Use Oracle APEX to build a robust database schema for secure storage of player information and fitness metrics, with access controls for privacy.*

*3. **Data Analysis**: Implement AI and machine learning to analyze historical fitness data, predict injury risks, and provide personalized training recommendations.*

*4. **User Interface**: Design intuitive dashboards for both players and managers, ensuring clear visualization and ease of navigation.*

(e) Structured Chart
Carta Berstruktur



(f) Project Significance
Kepentingan projek

1. Helps football players monitor fitness and receive AI-driven training recommendations to optimize performance and reduce injury risk.

2. Provides coaches and managers real-time insights for data-driven decisions and customized training schedules.

3. Highlights the role of technology in enhancing traditional sports practices and understanding athlete performance.

4. Advances sports science by integrating AI and machine learning to improve training and health management.

5. Aligns with the trend of personalized fitness, meeting the demand for tailored approaches in professional football.

(g) Gantt Chart of Project Activities
Carta Gantt Aktiviti Projec

Week	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Briefing of Workshop1															
Assigning Students to Supervisors															
Discussion/ Verification of the title and sypnosis. Proposal preparation															
Student Submit proporsal to Supervisor&Committee (Proposal)															
Discussion with Supervisor on analysis of the problem															
Project Implementation (Progress1)															
Mid-Semester Break															
Project Implementation (Progress2)															
Project Implementation (Progress3)															
Presentation with Supervisor															
Presentation with Evaluator															
Final report															

D	**REFERENCES**
	State your references: 1. *Sisinna, G. (2023, September 1). How AI is Revolutionizing Football Performance, Engagement and Recruitment. https://www.linkedin.com/pulse/how-ai-revolutionizing-football-performance-giovanni-sisinna* 2. *AnalyiSport. (2022, December 15). How is artificial intelligence being used in football? - AnalyiSport. https://analyisport.com/insights/how-is-artificial-intelligence-being-used-in-football/* 3. *AI in Sports: Exploring the Benefits and Best Practices. (2024, January 12). Forbytes. https://forbytes.com/blog/ai-in-sports-and-fitness-its-benefits/*

E	**ACCESS TO EQUIPMENT AND MATERIAL (PLEASE LIST IN DETAIL)** *I KEMUDAHAN SEDIA ADA UNTUK KEGUNAAN BAGI PROJEK INI (SILA SENARAIKAN DENGAN TERPERINCI)*	
	University *Universiti*	**Other Sources or Places** *Lain-lain tempat/sumber*
	Example */ Contoh:* ***Software:*** ***Microsoft Visual C++, Microsoft, Microsoft Access, Oracle Apex,***	

F (i)	**Declaration by student/** *Akuan Pelajar*
	Date : 24/10/2024 *Tarikh :* **Student's Signature :** *Tandatangan Pelajar :*