TEAM
M069

GPS & Health Tracker for Football Players

Mohammed AlThuwaini, Ibrahim Abdoh, Saud Alshushan,
Fahad AlMuhanna, Amer Almutairi, Nawaf Alhazmi
Coach: Dr. Wail Mousa

EE
ICS 3 COE

Problem Statement

Despite the Saudi sports sector's 32 billion SAR surge under Vision 2030, most small and mid-sized football academies still lack access to affordable, real-time player tracking and health monitoring systems. This technical gap limits data-driven coaching, tactical analysis, and the elite talent development required for the 2034 World Cup.

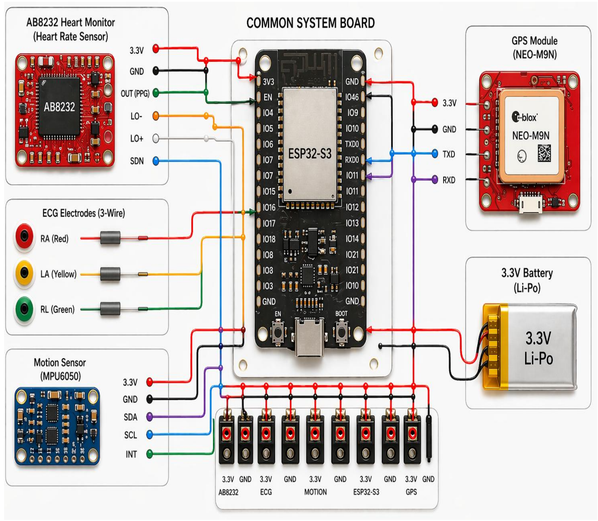
Specifications

- 5-min stat updates
- 5 performance metrics
- GPS accuracy ≤ 7 m
- ≥ 60% substitution accuracy
- Battery life ≥ 120 min
- Heart rate ±5 BPM accuracy
- Transport latency ≤ 100 ms
- Stores 5 match data
- Speed error ≤ 10%
- 95% data delivery

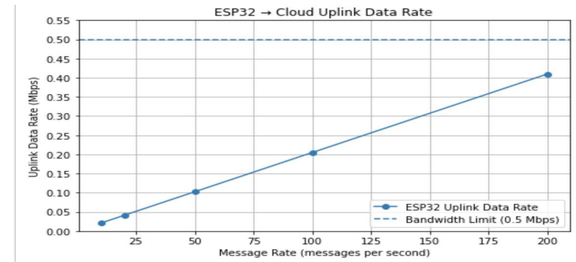
Constraints

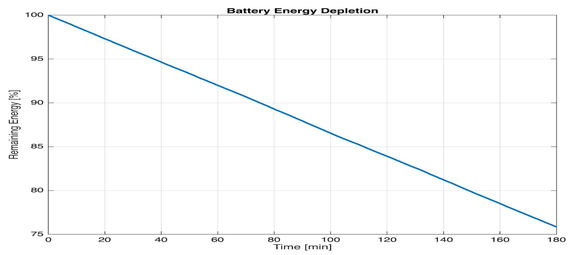
- CST frequency compliance
- ISO- 420012023 compliant
- Uplink latency ≤ 500 ms
- Bandwidth ≤ 0.5 Mbps
- Operates 5–50°C
- Weight ≤ 750 g
- 1-m drop resistant in field

Prototype Design

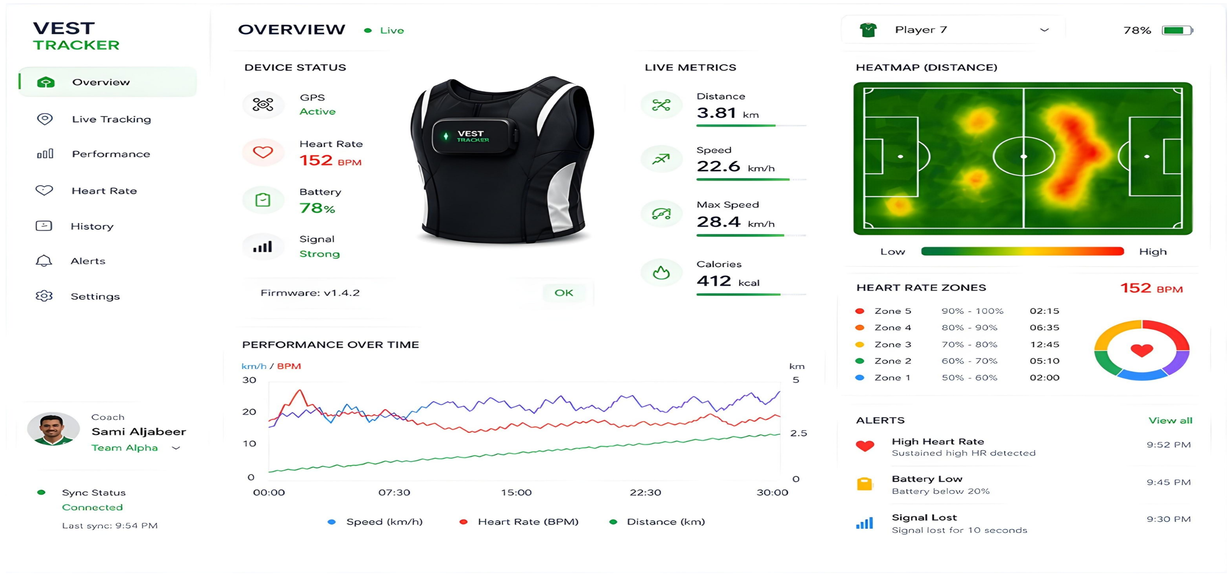


Validation & Verification

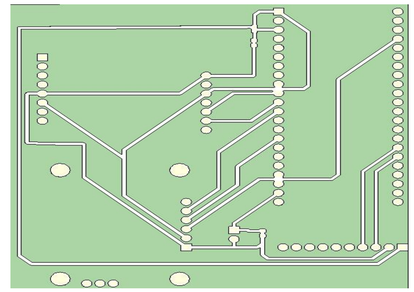




Testing



PCB Layout



Conclusion

This GPS & health tracker provides affordable, real-time football analytics and AI-driven substitution insights, helping Saudi teams optimize performance for Vision 2030.