Project Design Phase
Problem–SolutionFitTemplate

Date	07NOV2025	
TeamID	NM2025TMID06118	
ProjectName	Garage Management System	
MaximumMarks	4Marks	

Problem–SolutionFitTemplate:

TheProblem–SolutionFitmeansidentifyingtherealpainpointsofgarageownersandcustomers, and ensuring that the proposed Garage Management System (GMS) effectively addresses those problems. It helps developers and entrepreneurs design practical solutions that improve service efficiency, customer experience, and business operations.

Purpose:

- Solvecomplexproblemsingarageoperationssuchasmanualrecord-keeping,delayed communication, and disorganized service tracking.
- Increaseefficiencybyautomatingrepetitivetaskslikecustomerregistration,billing,andvehicle service scheduling.
- Improvecustomersatisfactionbyprovidingreal-timeupdatesandtransparentbilling.
- Strengthenbusinessperformancebymaintainingaccuratedata,reports,andperforman ce analytics.
- Helpgarageownersmakeinformeddecisionsusingdata-driveninsightsandservicetracking modules.

Template:

The project “Garage Management System” addresses major challenges in traditional garages wheremanualworkleadstoinefficiency,dataloss,andcustomerdissatisfaction.Bydevelopinga n automated and centralized platform, garages can handle operations digitally—covering customer details, vehicle information, service history, mechanic assignments, and billing.

Thesolutionintroducesmodulesfor:
- Customer&VehicleManagement
- ServiceBooking&StatusTracking
- Inventory&SparePartsManagement
- Billing&InvoiceAutomation
- Feedback&ReportGeneration

Thisapproachenhancesaccuracy,accountability,andproductivity.Garageownerscanmonitor ongoing services, track parts usage, and generate instant invoices—all from one dashboard.

Customersbenefitfrombettercommunication,fasterservice,andreliableupdates.

ThesuccessfulimplementationoftheGarageManagementSystemwillmodernizegarage

workflows,promotedataintegrity,andbuildtrustthroughefficientandtransparentoperations.

References:

1. https://www.ideahackers.network/problem-solution-fit-canvas/

2. https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe

ProposedSolutionTemplate:

S.No.	Parameter	Description
1.	ProblemStatement(Problemtobeso	Mweadn)ygaragesstillrelyonmanualmethodsformaintainingvehic
2.	Idea/SolutionDescription	TheproposedGarageManagementSystemis adigitalplatformd
3.	Novelty/Uniqueness	Thesystemprovidesan all-in-onesolutionforsmall andmedium
4.	SocialImpact/CustomerSatisfaction	Itenhancestransparencyandcustomertrustbysendingservic e
5.	BusinessModel(RevenueModel)	TheGarageManagementSystemcanbeofferedasasubscripti o
6.	Scalabilityofthe Solution	Thesystemcanbeextendedtoincludeadvancedanalytics,mo b

Reference: InternalDesignConceptcreatedusingFigma.

SolutionDescription:

TheGarageManagementSystem(GMS)isacompletedigitalsolutiondevelopedtosimplifyand automate daily garage operations. It helps manage customer details, vehicle history, job cards, mechanic schedules, and billing in one unified platform.

Thesystemenablesgarageownersto:
- Maintaindetailedservicehistoriesforeachvehicle
- Tracksparepartsusageandstocklevels
- Generateinvoicesautomaticallyafterservicecompletion
- NotifycustomersaboutservicestatusthroughSMSoremail

By reducing manual record-keeping and improving workflow coordination, the Garage Management System ensures faster service delivery, better accountability, and improved customersatisfaction.Thissolutionnotonlymodernizestraditionalgarage operationsbutalso paves the way for digital transformation in the automobile service industry.

SolutionArchitecture:

GoalsoftheArchitecture:

- Developacentralizeddigitalsystemformanaginggarageoperations.
- Maintainaccuratedataforcustomers,vehicles,andservicerecords.
- Streamlinemechanicassignments,inventorytracking,andbilling.
- Enhancetransparencyandcustomersatisfactionthroughautomation.

KeyComponents:

- CustomerModule:Storescustomerandvehicleinformation.
- ServiceManagementModule:Tracksongoingrepairs,jobcards,andmechanictasks.
- InventoryModule:Managesspareparts,availability,andstockalerts.
- Billing&ReportsModule:Automatesinvoicesandgeneratesfinancialreports.

- UserInterface(WebPortal):Forgaragestaff,mechanics,andcustomerstointeractwiththesystem.

DevelopmentPhases:

- Designdatabasestructureforcustomer,vehicle,service,andbillingdata.
- Buildweb-baseduserinterfacefordataentryandservicetracking.
- Implementserviceschedulingandmechanicassignmentworkflows.
- Integratebillingandinventoryautomation.
- Testsystemwithsampledataandrefinebasedonfeedback.

The Garage Management System (GMS) architecture is designed to automate and streamline everyaspectofgarageoperations.Itintegratescustomermanagement,vehicleservicetracking, inventory control, and billing into a single unified platform.

Thearchitecturefollowsamodularapproach,ensuringscalabilityandeasymaintenance.T he frontendwebinterfaceallowsstaffand customersto accessreal-timeinformation,whilethe backend database stores and processes all operational data.

Eachmoduleinteractsseamlesslythroughdefineddatarelationships:-
TheCustomerModulelinks to Service Records for tracking vehicle history.

- TheInventoryModuleupdatesautomaticallywhensparepartsareusedduringarepair.
- TheBillingModulegeneratesdetailedinvoicesonceaserviceismarkedcomplete.

This digital workflow eliminates manual paperwork, minimizes errors, and provides real-time insightsintoserviceprogressandbusinessperformance.Thearchitectureensuresdataintegrity, efficient resource utilization, and enhanced decision-making for garage owners.

Example–SolutionArchitectureDiagram:

Figure1:ArchitectureandDataFlowoftheGarageManagementSystem(FrontendWeb Application →Backend Server →Database →Reports Dashboard)

Reference:

1. https://aws.amazon.com/architecture/
2. https://www.ibm.com/cloud/architecture