

# Kiongozi Platform AI Chatbot - Project Roadmap

ID	Phase	Milestone	Description	Timeline	Dependencies	Key Deliverables	Success Metrics	Risk Factors	Mitigation Strategy
1.1	Project Setup	Project Initialization	Set up separate repositories, configure development environments	Month 1	None	- Two GitHub repositories- Development environments- CI/CD pipelines	Repository setup complete	Setup complexity	Detailed setup documentation
1.2	Project Setup	Dependencies Setup	Set up backend and frontend base projects	Month 1	1.1	- Backend Node.js/Express setup- Frontend React setup- AI/ML environment	All systems running	Version conflicts	Lock file management
1.3	Project Setup	Database Migration	Plan database schema and migration strategy	Month 1	1.1	- Database schema docs- Migration scripts	Schema validation	Data loss risk	Backup strategy
2.1	Core Features	Authentication System	Implement separate auth for API and clients	Month 2	1.2	- JWT implementation- Auth middleware- User management API	< 200ms response time	Security vulnerabilities	Regular security audits
2.2	Core Features	Chat Engine Backend	Develop core chat processing engine	Month 2	2.1	- Chat API endpoints- Message processing- Real-time setup	< 1s response time	Scaling issues	Load testing plan
2.3	Core Features	Knowledge Base	Set up civic education content database	Month 2	2.1	- Knowledge base schema- Content API- Import tools	Content coverage > 90%	Data quality	Content review process
3.1	AI/ML Integration	Model Integration	Set up TensorFlow models and API	Month 3	2.2, 2.3	- AI model deployment- Model API endpoints- Monitoring	Model accuracy > 90%	Model performance	Regular retraining
3.2	AI/ML Integration	Training Pipeline	Implement model training pipeline	Month 3	3.1	- Training infrastructure- Data preprocessing- Model versioning	Training success rate > 95%	Data bias	Diverse training data

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3.3	AI/ML Integration	Language Support	Multi-language support and translation	Month 3-4	3.1	- Language detection- Translation API- Language UI	5+ Kenyan languages	Translation accuracy	Native speaker validation
4.1	Client Development	Web Client	Develop responsive web interface	Month 4	2.2, 3.1	- Chat interface- User dashboard- Admin panel	Mobile responsiveness	UX consistency	Cross-device testing
4.2	Client Development	Mobile API	Implement mobile-specific endpoints	Month 4-5	2.2, 3.1	- Mobile API docs- Auth flows- Performance optimization	API latency < 150ms	Mobile compatibility	Device testing matrix
4.3	Client Development	Documentation	Create comprehensive API docs	Month 5	4.1, 4.2	- API documentation- Integration guides- Usage examples	Doc coverage 100%	Documentation gaps	Peer review process
5.1	Testing	Backend Testing	Implement backend test suite	Month 5	4.1, 4.2	- Unit tests- Integration tests- Load tests	Test coverage > 90%	Test reliability	Automated CI/CD
5.2	Testing	Frontend Testing	Implement frontend test suite	Month 5-6	4.1	- Component tests- E2E tests- Performance tests	UI test coverage > 90%	Test maintenance	Test automation
5.3	Testing	AI Model Testing	Test and validate AI models	Month 6	3.1, 3.2	- Accuracy metrics- Performance benchmarks- Error analysis	Validation accuracy > 90%	Model drift	Continuous monitoring
6.1	Deployment	Staging Deploy	Deploy to staging environment	Month 6	5.1, 5.2, 5.3	- Staging environment- Monitoring- Performance baselines	Uptime > 99.9%	Environment parity	Infrastructure as code
6.2	Deployment	Production Setup	Set up production infrastructure	Month 6-7	6.1	- Production environment- Scaling config- Backup systems	Resource optimization	Infrastructure costs	Cost monitoring
6.3	Deployment	Launch	Production deployment and monitoring	Month 7	6.2	- Production deployment- Launch checklist- Monitoring dashboard	System uptime > 99.9%	Launch issues	Rollback procedure