

70 FYP Ideas for Computer Science Students

Every idea comes with a suggested tech stack and a difficulty level, so your group can pick one it can actually finish in two semesters.

Filter these ideas by your team's skills: ezitech.org/fyp-idea-generator

Ideas by degree: [Software engineering](#) · [IT](#) · [AI](#) · [Cyber security](#) · [Data science](#)

Online version with explanations: ezitech.org/fyp-ideas

Before you pick, check five things

- **Is the problem real?** Name a person or business that has it.
- **Can you get the data?** For AI ideas, find the dataset before you commit.
- **Does it fit two semesters?** Cut it to one core feature that works end to end.
- **Does it match your team?** Split the work by skill: backend, front end or mobile, and the model or hardware.
- **Will it help you get hired?** Build in the stack you want a job in, and deploy it.

AI and machine learning

#	Idea	What it does	Tech stack	Level
1	Student dropout early-warning system	Predicts which students may fail a course from attendance, quiz marks and LMS activity, with a dashboard for teachers	Python, scikit-learn, Flask, React	Medium
2	Fake product review detector	Flags suspicious reviews on e-commerce listings from review text and reviewer behaviour	Python, BERT, FastAPI	Medium
3	Personalised learning path recommender	Suggests courses and a study order based on a student's skills and career goal	Python, collaborative filtering, Django	Medium
4	Credit risk scoring for microfinance	Predicts loan default risk and explains each score so a loan officer can trust it	Python, XGBoost, SHAP, Streamlit	Hard
5	AI resume screening and ranking	Ranks CVs against a job description and shows why each one matched	Python, spaCy, sentence embeddings, React	Medium
6	Electricity load forecasting	Forecasts hourly demand for a building or feeder to plan load management	Python, LSTM or Prophet, Grafana	Hard
7	Road accident hotspot predictor	Maps high-risk road segments from accident and weather data	Python, GeoPandas, Leaflet	Medium
8	Speech emotion recognition for call centres	Detects caller emotion from voice clips to flag calls for quality review	Python, librosa, CNN	Hard

Generative AI and AI agents

#	Idea	What it does	Tech stack	Level
9	University handbook chatbot (RAG)	Answers student questions from the prospectus and rules, with the source page cited	Python, LlamaIndex or LangChain, Chroma, React	Medium
10	Bookkeeping agent for small shops	Reads invoices and receipts, sorts expenses and drafts a monthly summary	Python, LLM API, OCR, PostgreSQL	Hard
11	Code review assistant for student repos	Reviews GitHub pull requests and explains bugs and style issues in simple words	Node.js, GitHub API, LLM API	Medium
12	Voice interview practice bot	Asks role-specific technical questions, listens to answers and gives scored feedback	Python, Whisper, LLM API, React	Medium
13	Contract and agreement simplifier	Turns rental agreements and contracts into plain summaries and flags risky clauses	Python, LLM API, PDF parsing	Medium

#	Idea	What it does	Tech stack	Level
14	Multi-agent research assistant	One agent searches, one summarises and one fact-checks, producing a cited report	Python, LangGraph or CrewAI	Hard
15	Quiz generator for teachers	Builds MCQs from lecture slides or PDFs at three difficulty levels and exports them to Google Forms	Python, LLM API, Google Forms API	Easy
16	MCP server for campus systems	Lets AI assistants read timetable, attendance and library data through the Model Context Protocol	TypeScript, MCP SDK	Medium

Computer vision

#	Idea	What it does	Tech stack	Level
17	Face recognition attendance	Marks class attendance from one classroom photo and blocks photo-of-a-photo spoofing	Python, OpenCV, InsightFace, Flask	Medium
18	Desi food calorie estimator	Identifies dishes like biryani or daal from a photo and estimates calories per serving	Python, YOLOv8, Flutter	Hard
19	Number plate recognition for parking	Reads Pakistani number plates at the gate and logs entry and exit times	Python, YOLO, EasyOCR	Medium
20	Sign language to text	Translates Pakistan Sign Language gestures into Urdu or English text in real time	Python, MediaPipe, LSTM	Hard
21	Helmet violation detector	Spots motorcycle riders without helmets in CCTV footage	Python, YOLOv8	Medium
22	Retail shelf stock monitor	Detects empty shelf space from store camera images and alerts staff	Python, YOLO, FastAPI	Medium
23	Handwritten answer sheet grader	Reads handwritten short answers and suggests marks against an answer key	Python, TrOCR, LLM API	Hard

Web development

#	Idea	What it does	Tech stack	Level
24	Hostel booking platform for small cities	Students find, compare and book verified hostels near campus, with reviews and a map	Next.js, Node.js, MongoDB, Maps API	Medium
25	Local services marketplace	Book plumbers, electricians and tutors, with ratings and in-app payment	Laravel, MySQL, Vue.js	Medium
26	Online exam system with proctoring	Timed exams with shuffled questions, tab-switch alerts and webcam checks	MERN stack, WebRTC	Hard
27	Multi-vendor store with courier tracking	Sellers list products, admin takes a commission, orders sync with a courier API	Next.js or Laravel, PostgreSQL	Hard
28	Clinic appointment and e-prescription portal	Online booking, doctor schedules, digital prescriptions and SMS reminders	React, Node.js, PostgreSQL	Medium
29	Live collaborative whiteboard	Several students draw, type and chat on one shared board in real time	React, Socket.IO, Canvas API	Medium
30	Alumni job referral portal	Alumni post openings, students request referrals, the admin verifies both sides	Django, PostgreSQL	Easy
31	Event ticketing with QR check-in	Sells tickets for campus events and checks guests in by scanning a QR code	Next.js, Node.js, QR library	Easy

Mobile apps

#	Idea	What it does	Tech stack	Level
32	Blood donor finder	Matches patients with nearby donors by blood group and location, with emergency alerts	Flutter, Firebase, Google Maps	Easy
33	Offline-first field survey app	Collects survey forms with no internet and syncs them when a connection returns	Flutter, SQLite, REST API	Medium
34	Women's safety SOS app	One tap shares live location with trusted contacts and starts an audio recording	Flutter or Kotlin, Firebase	Medium
35	Medicine reminder for elderly users	Gives dose reminders in Urdu voice and alerts a caregiver when a dose is missed	React Native, Firebase, text-to-speech	Easy

#	Idea	What it does	Tech stack	Level
36	Campus lost-and-found with photo matching	Matches found items to lost reports by comparing photos	Flutter, Firebase, image embeddings	Medium
37	Student carpool app	Matches riders on the same route to campus and splits fuel costs	Flutter, Node.js, Maps API	Medium
38	Hostel expense splitter	Tracks shared bills between roommates and shows who owes whom	React Native, Firebase	Easy
39	AR campus navigation	Shows the way to classrooms and offices through the phone camera	Unity with AR Foundation, ARCore	Hard

IoT and embedded

#	Idea	What it does	Tech stack	Level
40	Solar system monitoring dashboard	Tracks panel output, battery level and load, and alerts when output drops from dust or a fault	ESP32, voltage and current sensors, MQTT, Grafana	Medium
41	Smart irrigation controller	Waters crops based on soil moisture and the weather forecast	ESP32, soil moisture sensor, weather API	Medium
42	Gas leak detector with auto shut-off	Detects an LPG or gas leak, closes the valve and sends an SMS	Arduino, MQ-5 sensor, GSM module, solenoid valve	Easy
43	Appliance-level energy meter	Measures each appliance's usage and shows an estimated bill in an app	ESP32, PZEM-004T, Flutter	Medium
44	Cold chain monitor for medicines	Logs fridge and transport temperature and alerts when it goes out of range	ESP32, DS18B20, GSM or LoRa	Medium
45	Smart parking slot finder	Sensors detect free slots and an app shows what's available	ESP32, ultrasonic sensors, Firebase, Flutter	Medium
46	Water tank and pump automation	Starts and stops the pump by tank level and logs daily water use	ESP32, ultrasonic sensor, relay module	Easy

Cybersecurity and blockchain

#	Idea	What it does	Tech stack	Level
47	Phishing link and scam SMS detector	Classifies links and SMS messages, such as fake prize offers, as safe or phishing	Python, scikit-learn, Chrome extension	Medium
48	Network intrusion detection system	Detects attacks in network traffic with a model trained on a public dataset like CICIDS	Python, Scapy, scikit-learn	Hard
49	Zero-knowledge password manager	Encrypts passwords on the device so the server never sees them in plain text	React, Web Crypto API, Node.js	Hard
50	Web vulnerability scanner	Checks a website for common OWASP issues like XSS and missing security headers, then writes a report	Python, OWASP ZAP API	Medium
51	Deepfake image detector	Flags faces in images or videos that have been digitally altered	Python, PyTorch	Hard
52	Degree verification on blockchain	Universities issue degrees on chain, and employers verify them by scanning a QR code	Solidity, Ethereum testnet, React	Medium
53	Medicine supply chain tracker	Follows each batch from manufacturer to pharmacy to catch counterfeits	Solidity or Hyperledger Fabric, Node.js	Hard
54	Transparent donation tracker for NGOs	Shows donors where each rupee was spent, recorded on chain	Solidity, Polygon testnet, Next.js	Medium

Data science and analytics

#	Idea	What it does	Tech stack	Level
55	Pakistan job market analyzer	Collects job postings and shows in-demand skills and salary ranges by city	Python, Scrapy, Pandas, Streamlit	Medium
56	Brand sentiment tracker	Tracks public opinion about a brand across social posts in English and Roman Urdu	Python, Hugging Face transformers, Streamlit	Medium
57	Retail sales forecasting dashboard	Forecasts weekly sales per product and suggests how much stock to reorder	Python, Prophet, Power BI	Medium

#	Idea	What it does	Tech stack	Level
58	Smog and air quality predictor	Predicts next-day AQI for a city from weather and pollution data	Python, XGBoost, Streamlit	Medium
59	University result analytics	Shows which courses have high failure rates and how grades change by semester	Python, Pandas, Power BI	Easy
60	Customer churn prediction for ISPs	Predicts which customers may cancel and the main reasons behind it	Python, scikit-learn, SHAP, Streamlit	Medium

Ideas that solve Pakistani problems

#	Idea	What it does	Tech stack	Level
61	Roman Urdu toxicity classifier	Sorts Roman Urdu comments into positive, negative and abusive to help moderate Pakistani pages	Python, multilingual BERT, FastAPI	Medium
62	Urdu Nastaliq OCR	Converts scanned printed Urdu into editable text	Python, Tesseract Urdu model or fine-tuned TrOCR	Hard
63	Crop disease detector for farmers	A farmer photographs a wheat, cotton or rice leaf and gets the disease and treatment in Urdu	Python, TensorFlow Lite, Flutter	Medium
64	Solar size and payback planner	Suggests panel, inverter and battery size from monthly bills and shows the payback period	React, Node.js	Easy
65	POS for small shops with FBR invoicing	Billing app that works offline and prepares invoices in FBR's digital invoicing format	Flutter or Laravel, SQLite	Medium
66	Campus canteen ordering with Raast QR	Students order and pay through a simulated Raast QR flow; the canteen sees live sales	Flutter, Node.js	Medium
67	Mandi price tracker	Shows daily wholesale crop and vegetable prices by market and sends price alerts	Python, Firebase, Flutter	Easy
68	Urdu voice guide for public services	Answers spoken Urdu questions like how to renew a CNIC, using official government pages	Python, Whisper, LLM API	Hard
69	Flood alert and relief matching app	Shows river-level alerts from official sources and matches relief donors to needs by area	Flutter, Firebase, Maps API	Medium
70	Local wagon and bus route finder	Crowd-sourced routes for local wagons and buses in cities that have no transit data on Google Maps	React Native, Node.js, Maps API	Medium

Picked an idea? Next steps

- [FYP proposal format](#): what each section must contain
- [SRS template for FYP](#): Word and PDF
- [60 FYP title examples](#): name your project
- [FYP viva questions](#): prepare for the defense
- [Ezitech internships](#): learn a stack on real work before you build

Share this PDF with your FYP group. The latest version is always at ezitech.org/fyp-ideas.