



Template for Evidence(s)

UI GreenMetric Questionnaire

University : Andijon State Institute of Foreign Languages
Country : Uzbekistan
Web Address : www.adchti.uz

[3] Waste (WS)

[3.18] Planning, implementation, monitoring and/or evaluation of all programs related to Waste Management through the utilization of Information and Communication Technology (ICT) (WS.7)

Stage	Activities / Programs	ICT Utilization	Evidence	Timeline	Responsible Team / Department
Planning	Develop 3R (Reduce, Reuse, Recycle) strategy for campus waste management; conduct digital waste audit across all ADCHTI facilities; set measurable targets for waste reduction	Waste audit software, data analytics tools, GIS campus mapping, digital reporting systems	Strategic plan documents, waste audit reports, target-setting framework	Jan 2026 – Mar 2026	Sustainability Office, ICT Dept
Implementation	Install smart waste bins with IoT sensors; initiate waste segregation system (organic, plastic, paper, hazardous); deploy RFID tags for bin identification; train facility staff	RFID tags for bins, IoT sensor integration, waste management software, FusionSolar-linked monitoring platform	Installation logs, waste segregation reports, staff training records, bin deployment records	Apr 2026 – Dec 2026	Facility Management, ICT Dept



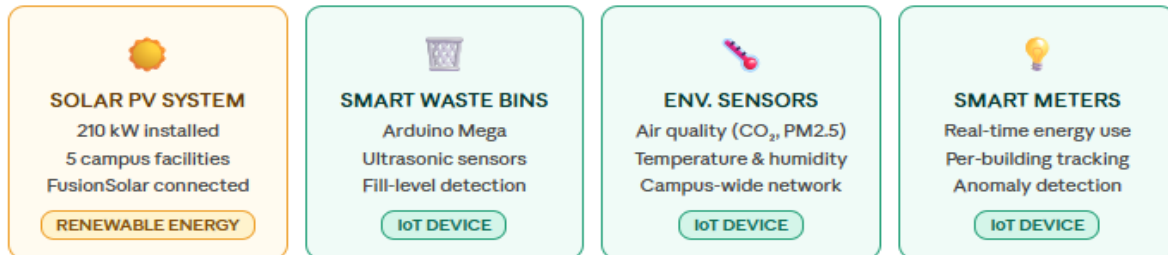
Stage	Activities / Programs	ICT Utilization	Evidence	Timeline	Responsible Team / Department
Monitoring	Track waste collection frequency and recycling rates in real time; monitor bin fill levels across all campus buildings; generate weekly performance alerts	Smart waste bins (ultrasonic sensors), real-time tracking software, centralized ICT dashboard, SMS alert system	Recycling rate reports, efficiency analytics, monthly waste collection logs, alert records	Ongoing (Jan 2027 – present)	Sustainability Office, ICT Dept
Evaluation	Assess effectiveness of 3R program; measure CO ₂ reduction from waste management; benchmark against UI GreenMetric waste indicators; update strategy based on data	Data analysis tools, feedback systems, carbon accounting software, FusionSolar-integrated dashboards	Program evaluation reports, stakeholder feedback, CO ₂ reduction data, GreenMetric evidence files	Annually (Dec 2027)	Sustainability Office, ICT Dept

ADCHTI SMART CAMPUS SYSTEM FRAMEWORK

IoT · Solar · ICT · Real-Time Monitoring · Sustainability Management

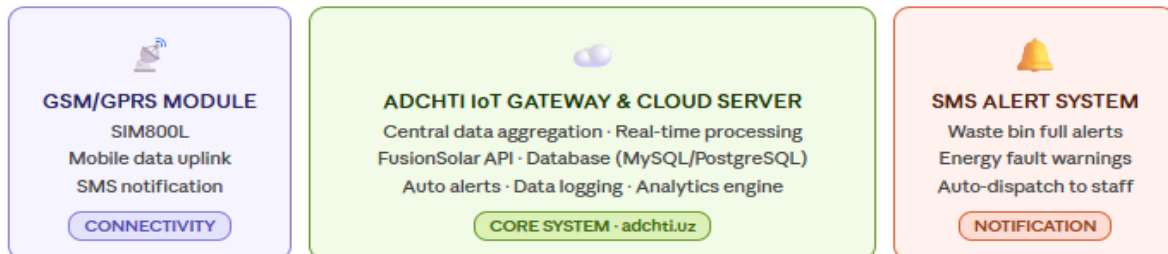
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• LAYER 1 — DATA SOURCES & SENSORS



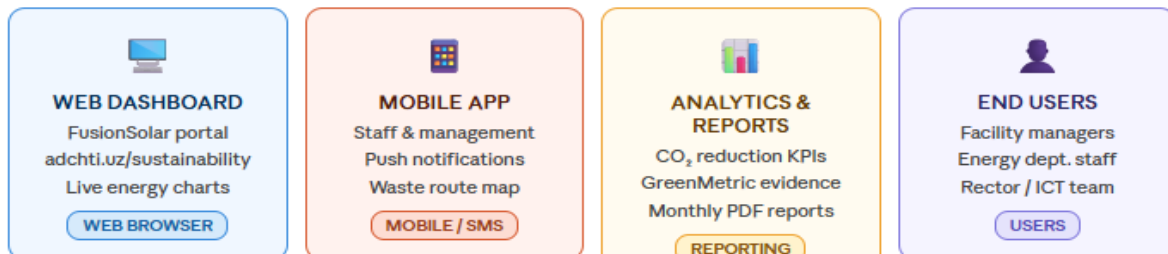
↓ Wi-Fi / GSM/GPRS / RS-485 ↓

• LAYER 2 — PROCESSING & CONNECTIVITY HUB



↓ Internet · HTTPS · REST API ↓

• LAYER 3 — USER INTERFACES & MONITORING



• HARDWARE COMPONENTS

- Arduino Mega 2560
- HC-SR04 Ultrasonic Sensor
- SIM800L GSM/GPRS Module
- MQ-135 Air Quality Sensor
- FusionSolar Smart Meters
- Wi-Fi (ESP8266) modules

• SOFTWARE & PLATFORMS

- FusionSolar Monitoring Platform
- MySQL / PostgreSQL Database
- Node.js / Python Backend
- REST API Integration
- Google Maps API (route opt.)
- adchti.uz Web Portal

• MONITORED FACILITIES

- Dormitory 1 — 40 kW solar
- Dormitory 2 — 50 kW solar
- Sport Complex — 90 kW solar
- Administrative Bldg — 20 kW
- Khonobaad Camp — 10 kW
- Planned Facility — 200 kW +

● Solar / Energy Layer ● IoT Sensors & Connectivity ● Core Gateway / Cloud ● User Interface & Analytics

● Data Flow: Wi-Fi · GSM · Internet

Fig. 1: ADCHTI Smart Campus IoT System Framework

Andijon State Institute of Foreign Languages · Smart Waste Management & Solar Energy Monitoring System · adchti.uz

Fig. 1.1. ADCHTI Smart Campus IoT System Framework — Three-layer architecture integrating solar PV monitoring (FusionSolar), smart waste bin management (Arduino/IoT sensors), environmental sensing, and real-time ICT dashboard accessible via adchti.uz

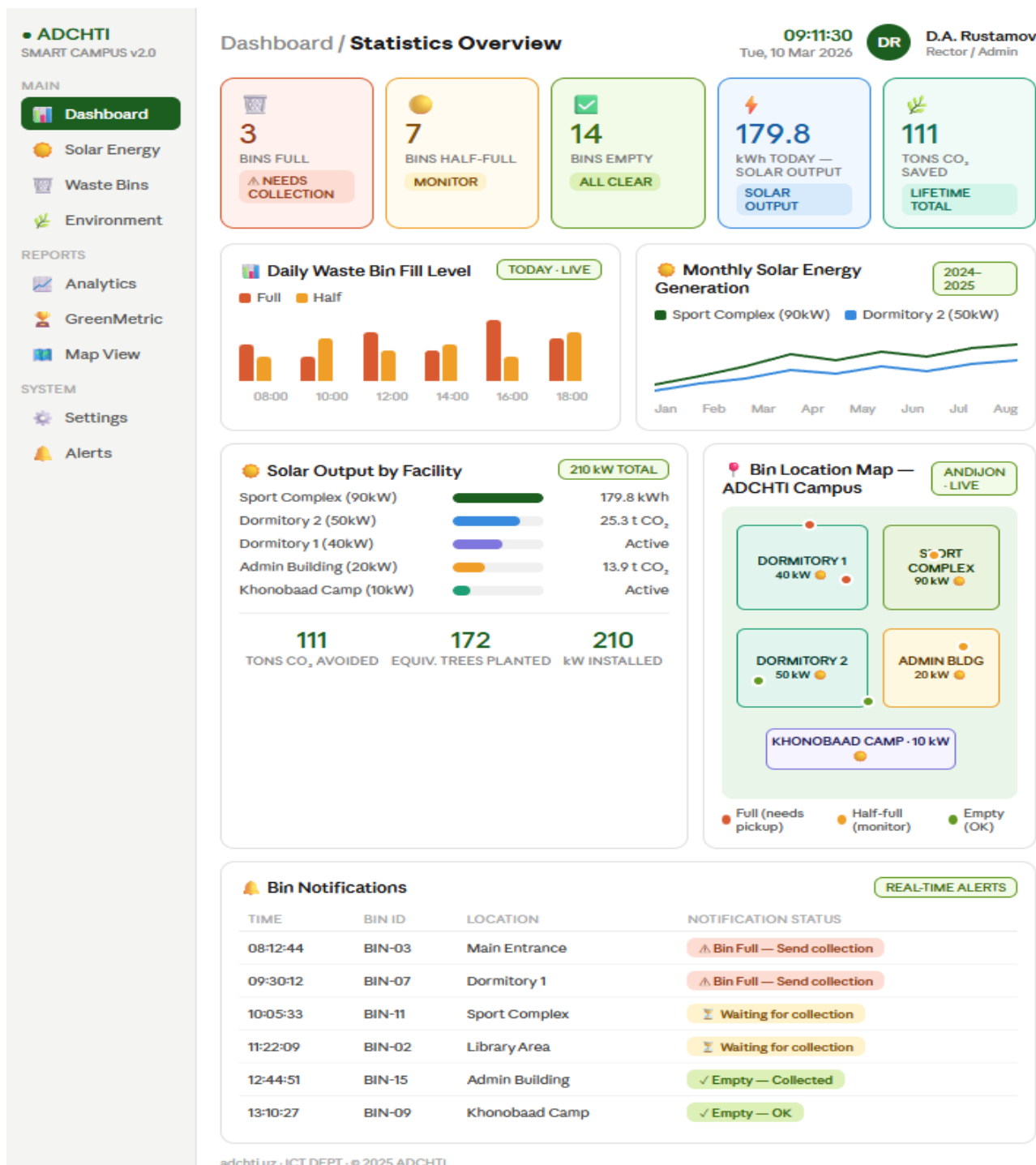


Fig. 1.2. ADCHTI Smart Campus Web Dashboard — Real-time statistics overview showing bin status (3 full, 7 half-full, 14 empty), daily solar energy output (179.8 kWh), lifetime CO₂ reduction (111 tons), bin location map, and automated notification system for campus waste collection



Description:

Andijan State Institute of Foreign Languages is developing an ICT-supported waste management program aimed at improving waste reduction, waste segregation, recycling practices, and evidence-based monitoring on campus. The program is structured according to four main stages: planning, implementation, monitoring, and evaluation, and is based on the 3R principle — Reduce, Reuse, and Recycle.

At the planning stage, the institute develops a campus waste management strategy and identifies priority areas for reducing paper, plastic, organic, and other recyclable waste. Digital tools such as waste audit forms, Excel/Google Sheets, GIS-based campus mapping, and internal reporting systems are used to collect and analyse waste-related information. These tools help the institute identify waste collection points, assess waste generation trends, and set measurable targets for improvement.

At the implementation stage, the institute introduces waste segregation practices across campus buildings. Separate collection of paper, plastic, organic, and hazardous waste is promoted through labeled bins, awareness materials, and staff training. ICT tools, including digital communication channels, online reporting forms, and institutional web-based platforms, are used to support coordination between the Sustainability Office, Facility Management Department, and ICT Department. Where technically feasible, the institute plans to introduce smart waste bins, RFID-based bin identification, and IoT-supported monitoring tools to improve waste collection efficiency.

At the monitoring stage, waste collection and recycling activities are recorded through digital tracking sheets, photo documentation, electronic reports, and centralized data files. These records help monitor the frequency of waste collection, the status of bins, recycling rates, and the effectiveness of waste segregation practices across campus facilities. The collected data are used to prepare monthly and annual reports and to improve waste management procedures.

At the evaluation stage, the institute assesses the effectiveness of the 3R program by analysing waste reduction results, recycling performance, stakeholder feedback. Digital data analysis tools and feedback systems are used to evaluate progress and identify areas for improvement. The results of the evaluation are used to update the waste management strategy, improve collection schedules, expand waste segregation practices, and strengthen institutional sustainability reporting.

The ICT-supported waste management program at ASIFL contributes to cleaner campus management, better waste segregation, improved recycling practices, and more transparent data-based decision-making in line with UI GreenMetric WS.7 requirements.

Additional evidence link (e.g. for videos, more images, or other files that are not included in this file):

<https://green-institute.adchti.uz/>

<https://green-institute.adchti.uz/#waste>