Combating Malnutrition with MARS – Raminfo's Digital Health Innovation

Challenge

Malnutrition remains one of India's most urgent public health challenges. Despite decades of welfare programs, nearly one in three children under the age of five is stunted, and millions of women suffer from anemia. These conditions not only increase child and maternal mortality but also affect learning, productivity, and the overall social fabric of communities.

To tackle malnutrition, the Government of India runs the **Integrated Child Development Services (ICDS)** scheme through **Anganwadi Centers (AWCs)** across the country. **Anganwadi workers (AWWs)** are tasked with monitoring child growth, recording nutritional data, and supporting pregnant and lactating mothers. However, the existing system faced significant bottlenecks:

- **Manual, error-prone processes** for recording weight and height.

- **Data delays**—often taking weeks to reach state headquarters.

- **Gaps in reporting** and misreporting, with little scope for real-time corrective action.

- **Low digital literacy** and heavy workloads among Anganwadi workers.

- **Calibration issues** with weighing and measuring equipment, leading to inaccurate assessments.

- High absenteeism and **proxy reporting** due to lack of beneficiary authentication.

These challenges hampered the government's ability to track nutrition trends, design effective interventions, and prevent malnutrition-related deaths.

Solution

Raminfo was tasked with developing **Malnutrition Analysis and Reporting System (MARS)** to address these challenges head-on. MARS is an integrated, IoT and ICT-enabled growth monitoring and reporting solution that equips Anganwadi workers with accurate growth monitoring tools and provides administrators with real-time data for swift decision-making.

Key Features of MARS:

- **Automated Data Capture**: Bluetooth-enabled stadiometers, infantometers, and weighing scales record height, weight, and BMI instantly.

- **Facial Recognition & Aadhaar Integration:** Ensures accurate beneficiary identification, eliminates proxy attendance, and prevents misreporting.

- **Mobile App for Anganwadi Workers:** A user-friendly interface in English and local languages, requiring only basic digital literacy.

- **Real-Time Data Transfer:** Growth and nutrition data are synced automatically to central MIS dashboards at project, district, and state levels.

- **Role-Based Dashboards:** Administrators at every level can access accurate statistics, track malnutrition hotspots, and plan interventions quickly.

- **Geo-Tagged Attendance:** Confirms the physical presence of beneficiaries, adding accountability to service delivery.

- **Portable Design:** Lightweight and modular—devices can be carried in a backpack and used across multiple centers.

Raminfo piloted MARS in **25 Anganwadi Centers across four districts of Andhra Pradesh**, covering **10,000+ beneficiaries**. The pilot exposed the scale of inaccuracies in the manual process, with a **10–15% deviation** in growth data, but also proved how quickly MARS could correct these gaps and provide trustworthy, actionable information.

Impact

The introduction of MARS created measurable impact across operational efficiency, health monitoring, and governance outcomes.

- **Improved Accuracy and Integrity**
  - Reduced misreporting through biometric and facial authentication.
  - Correctly identified children at risk of malnutrition who were overlooked in manual systems.
  - Enabled **real-time data availability**, reducing the reporting cycle from **over 20 days to near-instant transfer**.

- **Stronger Governance and Decision-Making**
  - State and district administrators gained access to accurate dashboards for policy-making.
  - Facilitated early detection of growth retardation, enabling targeted interventions before conditions worsened.

Malnutrition Analysis and Reporting System (MARS)

- o   Supported fair allocation of resources and nutrition supplements, reducing leakage and misuse.

- **Cost Savings**
  - o   Prevented misallocation of commodities at AWCs by eliminating proxy beneficiaries, leading to **~20% savings** in public expenditure.
  - o   Early treatment of malnutrition significantly reduced the financial burden with prevention costs being cheaper than treatment.

- **Empowerment of Anganwadi Workers**
  - o   Simplified data entry through app and automated devices, reducing record-keeping time from days to hours.
  - o   Freed up AWWs to focus more on counseling mothers, delivering health education, and supporting child care.

- **Healthier Communities**
  - o   Parents received **instant nutritional feedback** and SMS alerts on their child's health.
  - o   Pregnant and lactating women gained access to improved postnatal care tracking.
  - o   Telemedicine and awareness modules provided rural communities faster access to medical advice and government health schemes.

Malnutrition Analysis and Reporting System (MARS) demonstrated that technology could be a true game-changer in the fight against malnutrition. It is a lifesaving tool that strengthens governance, protects vulnerable populations, and ensures that every child's growth is monitored with dignity, accuracy, and care.