PATIENT MONITORING / CLINICAL RESEARCH

Biosignal technology for clinical research and care

3-Fi Medical (3-Fi Ltd.) is a Bulgarian medtech R&D company. We develop portable monitoring and vendor-neutral software so physiological measurements and clinical context can follow a patient across care settings.

DESIGNED FOR CONTINUITY OF CARE

Field and emergency care → **Medical transport** → **Intensive care** → **Long-term hospital monitoring**

From acquisition to review

01 Capture

Collect physiological signals or import recordings from existing devices.

02 Align and analyse

Place biosignals, health records and clinical events on one patient timeline.

03 Review and use

Review and annotate candidate events and features against source traces.

What we are developing

Custom biosignal ASIC

Project Compositio / Architecture phase

Low-power acquisition of EEG, ECG, EMG and other physiological signals, with synchronisation, impedance diagnostics and programmable edge processing.

Portable patient monitor

Project Curatio / Device development

Multimodal monitoring across care settings. Initial development uses commercial chips and can progress independently of the custom ASIC.

Biosignal and clinical software

Project NeuroSignal / Software R&D

Real-time and retrospective EEG, ECG and vital-sign analysis. Extract candidate events and features for clinician review with links to source evidence.

Research infrastructure

Three complementary R&D tools

Commutatio structures records for HL7/FHIR exchange. **Custos** supports pseudonymisation. **Permutatio** runs approved analyses locally or across sites.

Development-stage portfolio. We seek partners to evaluate clinical performance and utility in defined use cases.

PROJECT COOPERATION / SME TECHNOLOGY PARTNER

Where we can contribute

We seek to join Horizon Europe consortia as an SME technology partner. We combine our hardware and software with partners' diagnostics, care pathways, data and research to build and evaluate new medical systems.

Five ways to build together

ACTIVITY	WHAT 3-FI BRINGS	WHAT WE CAN BUILD TOGETHER
01 **Biosignal ASIC**	Low-power biosignal acquisition, synchronisation and programmable edge processing.	Combine our ASIC architecture with partner sensors, diagnostic platforms or algorithms for compact multimodal sensing.
02 **Portable monitoring hardware**	Portable patient monitoring platform with customisable signal modalities and AI-assisted processing.	Integrate with partner diagnostics, telemedicine or care platforms to support autonomous triage and monitoring through transport and hospital handovers.
03 **NeuroSignal and biomarkers**	Extract candidate biomarkers from EEG, ECG and vital signs, with clinician review linked to source signals.	With partner cohorts, develop and validate predictive biomarkers for disease progression or treatment response.
04 **Studies using existing data**	System-to-system interfaces, including HL7/FHIR gateways. Data harmonisation, annotation and anonymisation.	Combine approved cohorts and partner methods to compare results across sites, with findings traceable to source data.
05 **Prospective patient studies**	Protocol-specific acquisition, site integration and review, with local or federated processing.	Embed continuous measurements in investigator-led studies of new diagnostics, interventions or care pathways.

Priority Horizon Europe topics

Topic codes use the prefix HORIZON-HLTH-2027-.

02-TOOL-01-two-stage
Predictive biomarkers
Longitudinal biomarker development and validation.

02-IND-02-two-stage
Point-of-care diagnostics
Defined portable diagnostic use case with comparative validation.

03-TOOL-04
Virtual Human Twins
Physiological inputs and clinical integration for partner-led models.

Team. Neurology, critical care, embedded systems, AI, interoperability and data governance.
Clinical research collaborator. Heart and Brain Center of Clinical Excellence, Pleven.
Recognition and programmes. Excellence in Innovation 2025 label (ARC Fund) and InnoMedCatalyst participation.

Let's scope a joint project
Bring a clinical use case, technology or research idea. We can define what to deliver together.

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