INVENTION DISCLOSURE FORM (PATENT)

Filled sample (illustrative)

Confidential. Complete every section in your own words and submit the form to your institution's IPR cell or technology transfer office (TTO) before any publication, poster, thesis or talk about the invention.

Illustrative invention in the filled sample: A wrist-worn fall detector for elderly people that confirms a fall by the drop in wrist height measured with an air-pressure sensor, in addition to the impact measured by an accelerometer. The invention, inventors and figures are fictional.

Institution	Institute of Technology (example)	**Department**	Electronics and Communication
Date submitted	19 Nov 2026	**Reference no. (office use)**	IDF-2026-041

1. INVENTORS AND CONTRIBUTORS

1.1 Inventors (full name as on official ID, department or affiliation, email, phone, nationality, share of contribution)

Name everyone who contributed to the inventive idea, not only senior authors. Students and outside collaborators count if they contributed an idea.

1. Ananya Rao, Department of Electronics and Communication, ananya.rao@institute.example, +91 90000 00001, Indian, 40%. 2. Karthik Mohan Shetty, Electronics and Communication (UG student), karthik.shetty@institute.example, +91 90000 00002, Indian, 30%. 3. Farah Iqbal, Computer Science, farah.iqbal@institute.example, +91 90000 00003, Indian, 30%.

1.2 Lead inventor (contact person for this disclosure)

One person the IPR cell or TTO can contact with questions.

Ananya Rao

1.3 Other contributors who are not inventors, and what they did

People who only carried out instructions, such as fabrication or testing, are contributors, not inventors.

Laboratory technician: fabricated the printed circuit board to our design (fabrication only).

2. TITLE AND SUMMARY

2.1 Title of the invention (15 words or fewer)

Say what it is and the one feature that sets it apart. Avoid words like smart, novel or AI unless they define the invention.

Wrist-worn fall detector fusing air-pressure altitude change with motion data to reduce false alarms

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2.2 Summary: the problem, your solution and the main result (80 to 150 words)

Write a first version now and rewrite it when the rest of the form is complete.

Wrist-worn fall detectors raise frequent false alarms because normal hand movements resemble the impact of a fall. The invention adds an air-pressure sensor to the wrist band and raises an alarm only when an impact is followed, within two seconds, by a drop in wrist height of more than 45 cm and a period of stillness. A slow fall is detected from the height drop alone. In supervised trials the prototype reduced false alarms from 9 to 1 per 100 daily activities while detecting 29 of 30 simulated falls.

3. FIELD, BACKGROUND AND PROBLEM

3.1 Technical field

One line: the area an examiner would file this under.

Wearable devices for detecting falls of elderly people.

3.2 Background: how the task is done today, and by whom

Two to five sentences a non-specialist can follow. Define unusual terms.

Current detectors use a 3-axis accelerometer to recognise the impact and change in posture of a fall and alert a caregiver. Wrist-worn devices are the most accepted by users but the least accurate, because the wrist moves constantly in daily life. Users include elderly people living alone, patients recovering from surgery and care-home residents.

3.3 The problem: what fails today, in which situations, and with what consequence

Be specific. A precise problem makes the inventive step easier to argue.

Accelerometer-only wrist detectors raise false alarms when the user claps, sits down hard or drops onto a bed, and miss slow falls such as sliding off a chair. Caregivers stop responding to frequent false alarms.

3.4 Earlier solutions and their drawbacks (number them)

List each approach you know of and its specific drawback.

(1) Threshold detectors: cheap but inaccurate on the wrist. (2) Machine-learning models: fewer false alarms, but drain the battery in about a day. (3) Room cameras: accurate, but limited to one room and intrusive.

4. PRIOR ART SEARCH

4.1 Databases searched, keywords and date of search

For example Google Patents, Espacenet, WIPO PATENTSCOPE, InPASS, Google Scholar.

Google Patents, Espacenet and InPASS on 2 Aug 2026: fall detection AND (barometer OR "air pressure") AND (wrist OR watch).

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4.2 Closest patents or papers (3 to 5), and how your invention differs from each

Never leave this blank because you found something similar. The differences are what matter.

D1, chest-worn detector using pressure and acceleration: no stillness window, worn on the chest. D2, smartphone fall detection with the phone's barometer: phone in a pocket, not the wrist. D3, accelerometer-only wrist band: no height measurement.

4.3 Companies and research groups active in this area

In your country and abroad. They are also likely licensees or competitors.

Smartwatch makers with fall alerts, medical-alert service companies, elder-care device start-ups.

5. YOUR INVENTION

5.1 Key idea: how your invention solves the problem

Explain cause and effect: which feature fixes which problem, and why it works.

A real fall always ends with the wrist lower than before. The device measures wrist height with an air-pressure sensor and confirms a fall only when an impact is followed by a height drop of more than 45 cm and stillness, which clapping and sitting down do not produce. A slow fall is confirmed from the height drop alone.

5.2 Type of invention (tick all that apply): device or apparatus / method or process / composition or formulation / system / software with a technical effect / other

Choose more than one when a new device performs a new method; the application can then claim both.

Device and method (combination).

5.3 Objectives (3 to 5, each tied to a problem above)

Short numbered points.

(1) Fewer false alarms. (2) Detect slow falls. (3) About a week of battery life. (4) Low cost for home use.

6. DETAILED DESCRIPTION

6.1 Components or steps, in full (with reference numbers that match your drawings)

A skilled person in another lab should be able to make and use it from this alone. Give the values you used.

Components (Fig. 1): accelerometer (101), air-pressure sensor (102), low-power microcontroller (103), Bluetooth radio (104), vibration motor and cancel button (105), battery (106). Operation (Fig. 2): an impact above 2.5 g wakes the microcontroller; it compares wrist height in the 2 s after the impact with the 2 s before; if the drop exceeds 45 cm it checks for stillness for 10 s; it then vibrates and sends the alert unless cancelled within 15 s.

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6.2 Ranges and alternatives (materials, values, designs or steps that would also work)

Competitors design around what you leave out, and matter not disclosed now cannot be added later.

Any altitude sensor; height thresholds of 30 to 70 cm and stillness windows of 5 to 20 s; a smartwatch, pendant or belt clip; alerts by SMS, call or a care-home dashboard.

6.3 Drawings, flowcharts, photographs and data attached (list them)

Label every part with the same reference numbers as the text.

Fig. 1 block diagram; Fig. 2 flowchart of the detection method; Fig. 3 photographs of the prototype; Annex A test data sheet.

7. WHAT IS NEW, AND WHY IT MATTERS

7.1 Novel features (only what the closest prior art does not have)

One feature or combination per point. A known feature on its own is not novel.

(1) Confirming a wrist-worn fall by a height drop measured in a fixed window after the impact. (2) A slow-fall path using height drop and stillness without impact. (3) Event-driven wake-up for low power.

7.2 Advantages, with figures where you have them

Measured benefits are the strongest support for the inventive step.

False alarms reduced from 9 to 1 per 100 activities; detects slow falls; about a week of battery; sensors costing under ₹600; no camera, so no privacy concern.

8. STAGE OF DEVELOPMENT AND TEST RESULTS

8.1 Current stage (tick one): concept / proof of concept in the lab / prototype tested in a relevant environment / tested in real use / ready for market. Estimated technology readiness level (TRL 1 to 9), if known

State which TRL framework you used, and the evidence for it.

Prototype tested with volunteers in the lab; about TRL 4.

8.2 Tests done: what was built, the method, the conditions and the results compared with a baseline

A small table of numbers is clearer than a paragraph. Attach raw data.

Prototype tested with 12 volunteers: 30 simulated falls onto a mattress and 600 normal activities. Accelerometer only: 28 of 30 falls detected, 9 false alarms per 100 activities. Invention: 29 of 30 falls detected, 1 false alarm per 100.

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9. DATES AND DISCLOSURES

9.1 Date of conception and the record that proves it

For example a dated lab notebook page or email.

10 June 2026 (lab notebook, page 14).

9.2 Past disclosures outside your institution (papers, posters, theses, talks, demonstrations, web posts, code, emails to companies, sales), with dates and whether under a confidentiality agreement

List every one, however small. If there are none, write None.

Block diagram on a department poster, 5 Sep 2026 (no thresholds shown). Circuit layout sent to a PCB fabricator under NDA, 10 Aug 2026.

9.3 Planned disclosures, with dates

Tell the IPR cell or TTO about any deadline now; an application can often be filed before you publish.

Conference paper, 15 Jan 2027.

9.4 Related earlier patent applications, if any

Your own or your group's earlier filings this builds on.

None.

10. FUNDING, AGREEMENTS AND COMMERCIAL POTENTIAL

10.1 Funding (internal, government, industry or other), with scheme name and sanction number

Grant conditions can affect who owns the invention and what must be reported.

Internal: institute student project seed grant 2026.

10.2 Sponsors, collaborators, material transfer or other agreements covering this work

Any company or outside lab that provided money, material, data or equipment.

None.

10.3 Possible applications, products and licensees, and whether any have been contacted

Who would pay for this, and for what product?

A fall-alert band for families and care homes; licensing the method to smartwatch and medical-alert makers. None contacted.

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11. DECLARATION AND SIGNATURES

11.1 Declaration: We declare that the information in this form is true and complete to the best of our knowledge, that we are the inventors named above, and that we will not disclose the invention further until advised by the IPR cell or TTO.

Every inventor signs and dates. Your head of department or supervisor may countersign, as your institution's policy requires.

Signed by Ananya Rao, Karthik Mohan Shetty and Farah Iqbal on 18 Nov 2026.

11.2 For office use: received on, reference number, reviewed by

Completed by the IPR cell or TTO.

Received 19 Nov 2026, reference IDF-2026-041.

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