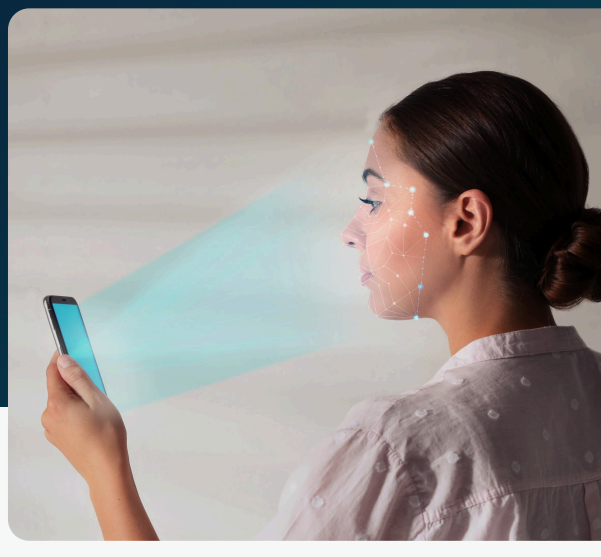


How does Lifelight work?

Contactless and accurate blood pressure readings ^{1,2}

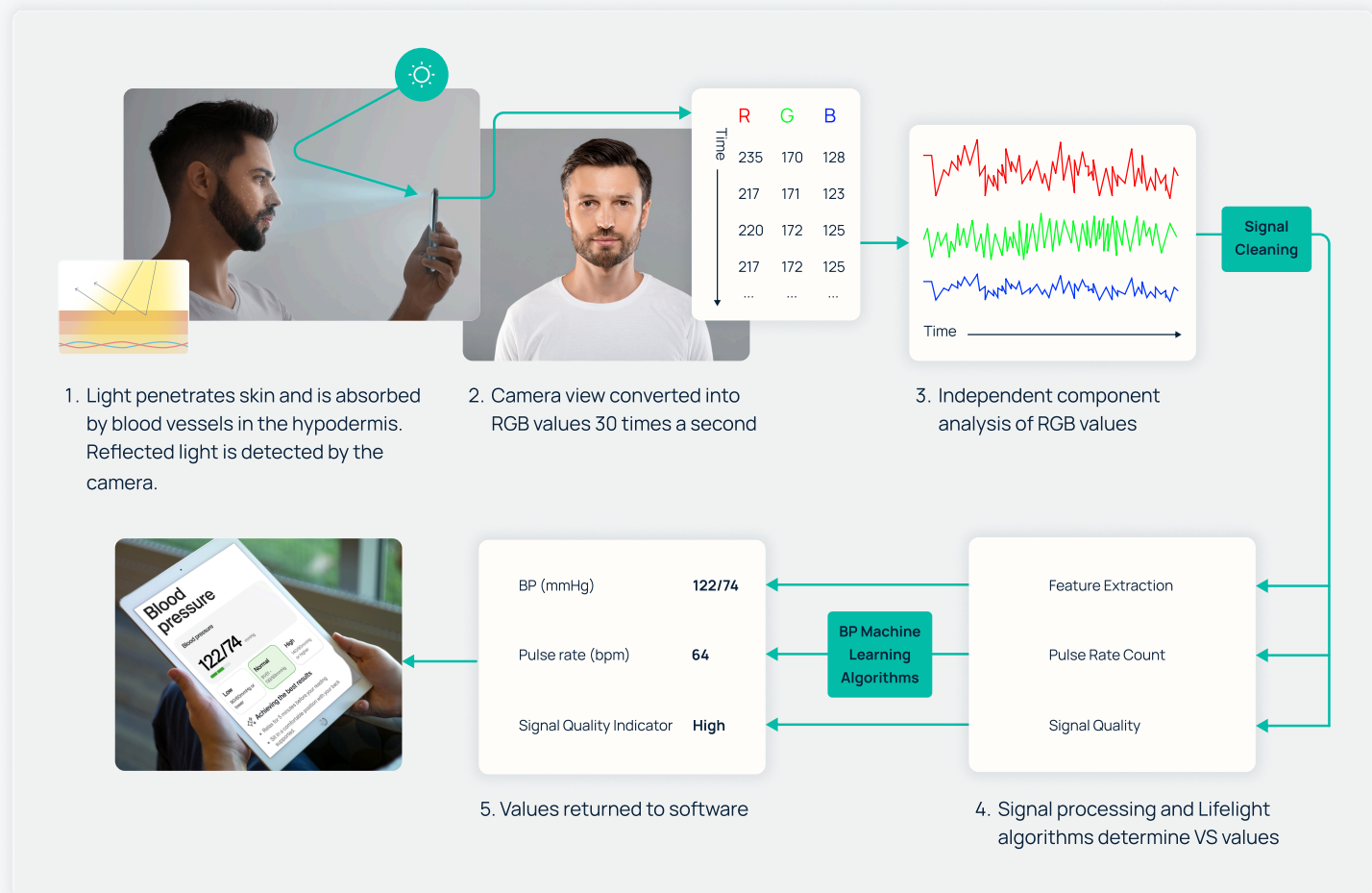


Established science combined with advanced machine modelling

When your heart beats, your skin "micro blushes."¹

Undetectable by the human eye, Lifelight detects tiny colour changes of the face with each heartbeat by measuring the reflected light using the integral camera on a smart device.^{1,3} Remote Photoplethysmography, known as rPPG turns the light into a stream of numbers for each colour channel - red, green and blue (RGB). The anonymised colour signal is sent to the cloud to be processed by Lifelight's algorithms.¹

Lifelight has been trained on thousands of pulse readings and works on a wide range of smartphones.^{2,3}



BP, blood pressure; bpm, beats per minute; mmHg, millimetre of mercury; RGB, red, green, blue; VS, vital signs. Adapted from Heiden et al. 2022.

How it works in two easy steps

Step 1: Pulse

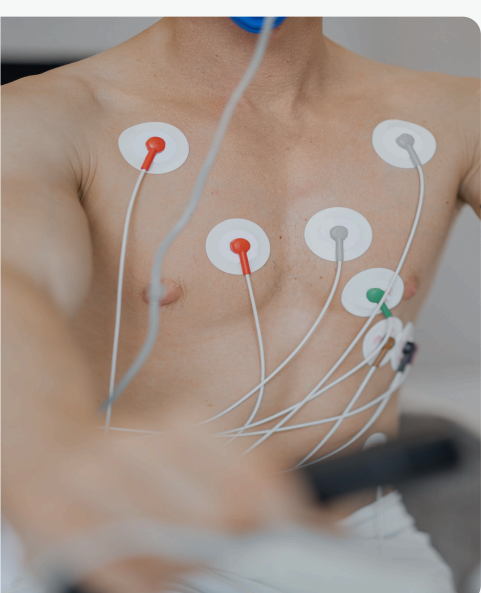
By recording the changes in face colour over time, Lifelight can calculate how often the blood flows in - i.e. the pulse. Lifelight filters out signals from movement or external sources and checks for consistent data during the reading before calculating the mean pulse rate.¹



Step 2: Blood Pressure

Once the pulse rate has been established, Lifelight cleans the signal again using different filters to remove unrelated data.¹ A unique transfer function transforms the signal into a carotid arterial pressure waveform. Further analysis including data from the most relevant colour channel creates further waveforms which are, together, used to report features that correlate with arterial stiffening and are indicative of blood pressure.¹

The prediction of systolic and diastolic blood pressure is performed separately using the most appropriate machine learning model for each parameter.



Certified

Lifelight has been issued with Class IIa certification for its blood pressure and heart rate readings and can be considered as equal to traditional measurement methods such as the cuff.^{2,5}

Calibrated

Lifelight has one of the largest clinical databases of rPPG with pulse and BP readings from thousands of individuals.

Suitable across BP ranges and age groups

Lifelight has been tested in extremes of both hyper and hypo tension.³ Lifelight is currently approved for use in adults aged 18 years and older.⁷ Trials in the paediatric population are ongoing.⁶

Consistent performance across all skin tones

Lifelight has been shown to be unaffected by skin tone as assessed by the Fitzpatrick Scale.³

Tried and tested in the NHS

"The ability for our patients to have their blood pressure and other vitals checked at the same time as receiving their Covid or flu vaccine just makes sense for both patient and the NHS. We're finding patients who had no idea they had hypertension getting picked up by Lifelight."

Tim Cooper, Deputy Chief Medical Officer
Hampshire and Isle of Wight Integrated Care Board

Fully anonymous and privacy preserving

Patient confidentiality is a key priority. All data is anonymised and not processed or stored on the device used to take the reading. Although Lifelight does require some basic biometrics, no other personal identifiable data is captured.



About Lifelight

Lifelight is the world's first medically certified (EU MDR CE Mark Class IIa), software-only solution for measuring blood pressure and pulse rate using just a smartphone camera.

The technology requires no hardware, cuff, or calibration and can be seamlessly integrated into any healthcare app via SDK. Lifelight is trusted by leading organisations including Microsoft, Medtronic and the NHS.

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References

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