

Tech Brief: TechBrief/2021/02

Digital Non Contact Infrared Forehead Thermometer

Technology Summary

BMek has developed a Machine-Learning Enabled Non Contact Infrared Thermometer for detecting real time elevated body temperature and other industrial applications.

Background

Elevated body temperature is detectable with the help of IR thermal scanning technology, and non-contact thermometers are being used as a frontline screening tool to help identify COVID19 suspects and prevent the spread of the coronavirus. Apart from this, IR-based thermometers are increasingly becoming common for maintenance and routine check of equipment used in the manufacturing industry, healthcare, food, and other industries.

Technology description

The non-contact thermometer system consists of infrared sensors along with machine learning techniques using ARM processor, to report the estimated body temperature. The algorithm running on the device can estimate the body temperature and is displayed on an OLED/LCD screen, with raised body temperature setting off an alarm. This method of computing the body temperature irrespective of distance up to 120mm makes the non-contact thermometer unique, as it eliminates the dependence of the accuracy on measurement distance.

Market potential

The infrared thermometer market is projected to grow from USD 2.3 billion in 2020 to USD 3.6 billion by 2025, at a CAGR of 9.2%.

<https://www.marketsandmarkets.com/Market-Reports/infrared-thermometer-market-191167475.html>.

Value Proposition

- No dependence of non-contact thermometer accuracy on distance.
- Sensor Accuracy of +/- 0.5 °C at a distance of ~ 12 cm between 0°C and 50°C
- Options available for logging temperature and time data on the mobile along with cloud and wireless connectivity
- Indicates raised body temperature with an alarm

Applications

Temperature screening and logging by untrained personnel. It can be connected to an IoT System.

Technology status

Proprietary hardware, software and machine learning models knowhow owned by BMek. The non-contact thermometer is at TRL4^a (Technology Readiness Level). BMek is seeking technology licensees.

References:

^a: BIRAC TRL scale for medical devices:

https://www.birac.nic.in/webcontent/birac_trl_doc5_medical_devices_and_diagnosis_12_09_2018.pdf

