

# ABSTRACT

*Chances of capturing arrhythmia signals become high when recorded using ECG 12lead. ECG 12lead provide traceability of 12 different heart electrical positions. Each lead intended to take electrical activity from different positions in the heart muscle, addition of Bluetooth is necessary so patient can always be monitored. Purpose of this research to develop ECG with more reading signals. Contribution of this study is makes ECG 12lead so that more heart signals can be diagnosed, by adding Bluetooth making ECG readings more portable for diagnosing so it facilitates the work of nurses and signals can be monitored any time. From the above purpose, the idea is to make ECG 12lead 3channel display PC with Bluetooth as data transmission. This ECG circuit consists of circuit buffer, Multiplexer, Instrumentation Amplifier, High Pass Filter, Low Pass Filter, Notch Filter, Final amplifier and Adder, ECG signal obtained from the placement of electrodes on the patient's body, and Bluetooth to transmit data and then Delphi program as interface to PC. Results showed that Reading error of BPM setting 30-60-120 was 0% and 4.17% setting 240, Signals matching result obtained an average error value is 2.81%, and this ECG can send signals up to a distance of 35m without obstructions and 12m with obstructions. The conclusion is ECG 12lead 3channel has been created with Bluetooth as data transmission. Results of this study can have implications on conventional ECG to improve signal reading and with the addition of Bluetooth can make it easier for nurses to monitor patients.*

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**Keywords:** *Hearth, ECG, BPM, Bluetooth Module*