Executive summary of Minor Research Project

Name of the Principal Investigator: **RASHMI**

1. Title of research project**:** **A study on Wireless Body Area Network of Intelligent motion sensors for computer Assisted physical rehabilitation**

UGC Reference No: **MRP(S)-0512/13-14/KAMA002/UGC-SWRO dated 28-03-2014.**

Since aged/young people are suffering from various health issues like respiratory problem, blood sugar, blood pressure, heart related diseases, the current medical techniques fails to overcome these situations. An accurate assessment of the qualitative, quantitative aspects of physical activity is considered very important in order to achieve better results in rehabilitation. The advancement of technology introduced sensor based Wireless Body Area Network (WBAN) to improve health of a person and alarm them in advance by giving early warning or guidance; and also providing auto medication in emergency.

WBAN is a wireless network of wearable and implantable non-invasive computing devices. The special purpose of WBAN is designed to operate autonomously connecting various sensors and appliances located inside and outside the human body. It is used either at home or in a hospital health care monitoring system to constantly monitor the patient's physiological parameters. For example, pregnant woman parameters such as her blood pressure, her heart rate and movements of foetus, to monitor their health condition. In this system, a coordinator node which is attached on patient body to collect all the signals from the wireless sensors and sends them to the base station. This system can detect abnormal conditions, generate daily tips and advices, issue an alarm to the patient and send an SMS/Email to the physician

As there are several advantages and applications of WBAN in health care, there are some risks in using it; one among them is the security where the health information of the person sent to the medical server is not kept confidential. As the survey is done by evaluating the sample data, it is found that many people are not aware of the wearable or implantable WBAN devices. There may be several reasons behind it, either people are not having sufficient information about it or not having knowledge to use it, or the availability of the device may be limited to certain regions. The

following sample data is found from the study based on the availability and usability of the device- Mangalore -25%, Banglore-50%, Mysore-40% etc. From the result it is found that if this device is brought to everyone's knowledge, then more people can use the device and improve their health condition.