

TRIZ-based Approach in Remodeling Invasive Glucometer

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Abstract. Diabetes Mellitus is a serious clinical condition. If left unchecked the increased blood glucose level may predispose to cardiovascular disease, damages in nerves/veins, blindness, limb amputation and kidney disease. Utilising TRIZ based models such as Functional analysis and Su-field, we are able to model the problem appropriately by highlighting the key disadvantages for design improvement. Engineering and Physical contradiction models enabled us to address the problem effectively and provide an excellent case study for enhancing the present tool used in determining the blood glucose of a diabetic patient. A prototype model of the device has been developed and preliminary experiments are done to validate its efficacy. The potentials for further refinements can be expanded by addressing secondary problems that we have identified. We believe that noninvasive smartphone glucometer will be useful and a safer option in determining the blood glucose level.

Keywords: Invasive, Glucometer, TRIZ.