ABSTRACT

TITLE: ELECTRICAL SAFETY DEVICE AND SYSTEM

~~An electrical safety device is described which includes a socket arranged to receive an electrical plug of an electrical appliance to connect a current supply to the electrical appliance, a thermal sensor arranged to detect the surface temperature of an electrical plug when received in the socket and a processor in communication with the thermal sensor, the processor configured to determine when the sensed surface temperature exceeds a predetermined threshold. The invention also includes an electrical safety system comprising the electrical safety device configured to communicate with a remote device. The device and system provide early detection of electrical faults and hazards to reduce the risk of fires.~~ ~~**Figure 2A.**~~

An electrical appliance with an electrical safety device comprises a thermal sensor arranged to detect the surface temperature of internal electrical components and a processor in communication with the thermal sensor, the processor configured to determine when the sensed surface temperature exceeds a predetermined threshold. The electrical appliance may be, for example, a microwave oven, a gas or electric oven, a boiler, a fridge, a washing machine or a consumer unit. The thermal sensor may be an infrared sensor such as an infrared camera comprising an array of thermopile detector pixels. The invention also includes an electrical safety system comprising the electrical safety device configured to communicate with a remote device. Communication may be wireless and may be made to a smart device. A remote device may restrict flow of water, gas or electricity. **Figure 7.**