C M R Institute of Technology

Affiliated to VTU, Approved by AICTE, Accredited by NBA and NAAC with "A+"

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MANAGEMENT ENTREPRENEURSHIP FOR IT INDUSTRY

ENTREPRENEURIAL PROJECT

(1) Title of the Project	IOT based walking stick
(2) Problem Statement and Objectives	**Problem Statement :** Visually impaired people and elders are facing difficulties in identifying obstacles around them especially during walking and crossing the road which may lead to accidents and lack of confidence in them. **Objective:** ► IOT is an emerging topic of technical,social, and economic significance , it extends internet connectivity beyond devices like mobile , desktop , tablets to a diverse range of devices. ► This smart stick is assembled with the ultrasonic sensor, PIR sensor, flame sensor, gas sensor and 3-axis accelerometer inbuilt in NI-myRIO; all of these components can detect the dangers and alert the user regarding the same. Both ultrasonic sensor and PIR sensor contribute for obstacle detection, while the ultrasonic sensor can sense non-living and stationary objects, PIR sensor can detect living beings or more specifically warm bodies
(3) Possible Solution	► The proposed prototype is an electronic device that constitutes of obstacle detection module, a fall detection module, hazard detection module, navigation module combined with GPS and IOT, alert system along with distress button and the main processor used here is powered by an external battery which is National Instruments myRIO. ► All the mentioned components are combined and mounted on to a walking stick. ► The project also incorporates IoT technology to interconnect the fall detection, obstacle detection, and hazard detection modules with the internet and thus report any instances of a fall and/or abnormal conditions which the holder may have to face to the family member(s) of the vulnerable person via Email through LabVIEW software.

	► A special distress button will be used by the vulnerable person in a situation where they come face to face with dangers unexpectedly, to connect with the family immediately.
(4) Features	1.Obstacle-Detection-Module 2.Flame detection module 3.Navigation module 4. Alert system 5.Fall detection system
(5) Specifications	• This smart stick is assembled with the ultrasonic sensor, PIR sensor, flame sensor, gas sensor and 3-axis accelerometer inbuilt in NI-myRIO. • This myRIO is the hardware which can execute the instructions that we design in the LabVIEW which is the software which acts as the interface between hardware components and myRIO.Obstacle-Detection-Module consists of two sensors (i) ultrasonic sensor (ii) PIR sensor.Flame detection module contains a flame sensor. • It can detect infrared light with a wavelength ranging from 700nm to 1000nm.The NI myRIO is an embedded design device which was created for students to ―do real-world engineering‖. It features a 667 MHz dual-core ARM Cortex-A9 programmable processor and a customizable Xilinx field programmable gate array (FPGA) that can be used to start developing systems and solve complicated design problems faster.
(6) Market analysis	1. Most commonly, stick is use by blind and elderly people as a support for their body to stand and walk. 2. The smart blind stick can be trained for more number of objects which in turn would help the blind person to move around in various neighbourhoods with increased level of safety 3. In the future, the stick can be used for face detection.
(7) Competitive Differentiator	Currently there is no competitive product that helps visually impaired people and elders during walking to detect obstacles or objects. So our product can help them.

(8) Cost Structure	• Rs 1000-2000 SRF02 sonar sensor • Rs 300-600 Radio frequency identification(RFID) • Rs 1000-2000 Camera • Rs 50-100 LED

(9) Stages of the solution	Methods to Implement : 1.Obstacle Detection 2.Fall Detection 3.Flame Detection 4.Hardware Requirements and Inter-Networking 5. Software:

(10) Effort Estimation

Key activities	Estimated Efforts	Remarks
Literature Study Customer Survey	Duration – in Months 4 Hour / Week / Member 4 x 4 x 2	32 Man Hours
● Module1	Duration – 1.5 Month 4 Hour / Week / Member 4 x 6 x 2	48 Man Hours
● Module 2	Duration – 1.5 Month 4 Hour / Week / Member 4 x 6 x 2	48 Man Hours
● Module 3	Duration – 1.5 Month 4 Hour / Week / Member 4 x 6 x 2	48 Man Hours
Testing	Duration – 0.5 Months 4 Hour / Week / Member 4 x 2 x 2	16 Man Hours
Total Effort		192 Man Hours

(11)Team Members(Minimum:02, Effort/Staff = 0.5man-months per year)

Name	Key Strengths	Key Responsibilities

Team Leader Lavanya G	Internet of Things(IOT)	• Mobile App Development • Functions in Camera API
Member Names JC Kavya Nirmala Bai Lekhana M Uma Naga Bharathi M Mamathy Jyotsni Dasari Divyashree	• Mob App Development • IOT • Cloud Computing • Web Development	• Mobile App Development • Functions in Camera API • Testing • Web Application

(12)Milestones

Duration ( )	Planned Activities	Members Assigned
1 Month	● Literature Study ●Customer Survey	• Lavanya G • JC Kavya
1 Month	● Module 1	• M Uma Naga Bharathi • M mamathy • Nirmala Bai
1.5 Month	● Module 2	• Lekhana • Lavanya G • Divyashree
1.5 Month	● Module 3	• Jyotsni Dasari • JC Kavya
1 Month	● Testing	• Lekhana • Nirmala Bai • M Uma Naga Bharathi

(13) Information to achieve Exit criteria:

Commercialized to one entity which will detect the obstacles in a particular distance only because of the safety purpose. It will have a huge impact in future and we can avoid most of the accidents of the blind peoples

Approved :

Remarks:

Date: **Faculty Member**