Mansoura University
Faculty of Computers and Information
Department of Computer Science

PROJECT PROPOSAL

Arabic Title

جهاز مراقبة نمط النوم

English Title

Sleeping Pattern Monitoring Device

Submitted by:

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PROJECT ABSTRACT:

Sleeping is slowly becoming at the bottom of our priorities, and we keep treating it like a luxury, while a good sleep is very critical for all mental and physical operations throughout the day.
Therefor we decided to make a device that monitors sleep pattern to help people keep tracking of their sleep via mobile application to improve it and by result improve their daily life activities.
Will not overlook people with certain medical condition that forbids them from sleeping on one the sides; so, we added the alarm every time the user sleeps on that side to improve his recovery cycle.

PROJECT OBJECTIVES:

keep tracking of users sleep pattern.
rate each night's sleep.
set a setting if the user must not sleep on specific side due to medical condition so the device alarm him.
track results from mobile application.

WHO ARE THE PROJECT **COMPETITIVE**? AND HOW WILL YOUR PROJECT BE **DIFFERENT**?

Mi Fit Band.
- Our competitive advantage is the alarm when the user sleep on a specific side he should not be sleeping at.

TOOLS, HARDWARE AND SOFTWARE RESOURCES:

Software: -

Arduino IDE (C).
Flutter (Dart).

Hardware: -

Bread Board
Arduino UNO
IMU (3 Axis Gyro + 3 Axis Accelerometer) MPU-6050
Bluetooth Module (HC-05)
Battery 3.7v
Jumper wires

SCHEDULING PHASES:

From	To	Activity
29/11/2020	**6/12/2020**	Finishing connecting all hardware components.
13/12/2020	**31/12/2020**	Coding for the hardware and mobile application.
3/1/2021	**15/1/2021**	Testing

LITERATURE REVIEW:

A quality sleep tracker can offer a surprising wealth of data that can help you improve your sleep hygiene and avoid restless nights tossing back and forth.
Still, tracking devices can be useful for helping you recognize patterns in your sleep habits, Schwartz says. Do you feel sluggish when you sleep from 10 p.m. to 6 a.m. but energetic if you shift your shuteye to 11 p.m. to 7 a.m.? Do you sleep better when your bedroom is cooler or on days you exercise? Is your sleep disrupted if you have caffeine after lunchtime?

"The tracker will give you something to reflect on," says Alan Schwartz, M.D., director of the Sleep Disorders Center at Johns Hopkins Bayview Medical Center– often with user-friendly graphs or reports that make it easy to spot trends.

The accurate assessment of sleep is critical to better understand and evaluate its role in health and disease.
Within the research and clinical sleep communities, there is growing recognition of the potential benefits of using wearable sleep trackers. Benefits include the easy accessibility of an incredible and unprecedented amount of information about sleep and other behaviors, collected in peoples' natural environments for extensive periods. Data can be collected at any time without active engagement from the users (who simply wear a device) and without the need of specialized technicians processing the data (which are usually provided in a summary form, such as total minutes spent asleep).

REFERENCES:

- Johns Hopkins Medicine
- PubMed Centra: US National Library for Medicine