

Applications for the Motion Microscope

Problem

In medicine there are diseases that could be given insight if minute motions were used to help monitor them. MIT has developed the motion microscope that can be used to monitor diseases.

Company Background

Wireless Fitness Technologies LLC President and founder works with universities such as Purdue, The University of Southern Indiana and UAH to develop products. One product by Adheretech is on the market making wireless pill bottle.

Project Summary

The team will use a cell phone camera or dedicated camera to capture images to detect Congestive heart failure by taking videos of the jugular vein, ankle, leg

Another team will use a cell phone camera or dedicated camera to capture images to detect the size of the tongue to measure obstructive sleep apnea.

MIT has developed the motion microscope in which very small motions can be captured with a camera.

<https://people.csail.mit.edu/nwadhwa/motion-microscope/>

MIT releases open-source software that reveals invisible motion and detail in video

Scientists at MIT have developed open-source software that can reveal details in videos that

are otherwise invisible. This software -- which works with videos on YouTube or DVD -- can reveal the blood pumping beneath someone's skin, with such detail that you can accurately measure their heart rate.

<https://www.extremetech.com/extreme/149623-mit-releases-open-source-software-that-reveals-invisible-motion-and-detail-in-video>

als-invisible-motion-and-detail-in-video

The team(s) will learn how to take and analyze the images. A medical school will be recruited to work with the students.

The team: Preferred team size 3-5

More than one team can work on this if they are available-

One team-monitor the tongue size and minute motions for Sleep apnea

One team-monitor the size of the calf and leg for Congestive Heart Failure

One team-monitor the jugular venous for Congestive Heart Failure

Location: Remote

Intellectual Property

- Each team member will be asked to sign an NDA with Robert Gold of Wireless Fitness Technologies LLC.
- Wireless Fitness will require that the project and all parts be assigned to and owned by Wireless Fitness Technologies LLC.

Student Benefits

- Opportunity to work on the development of an app that will be made available on Apple and Google Play app stores
- Students will be given an opportunity to become involved in the company to further develop the technology.
- Robert Gold the president the president of Wireless Fitness Technologies LLC has experience with student teams and has worked with over 10 teams from 4 Universities.

Useful Skills/Software

- To become an expert in the free software of the motion microscope

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