Crackles

RLC-S

Recognition and Localization of a Crackle Sound

Providing a clinical tool for assessing in crackle sound detection in a respiratory physiotherapy for Cystic Fibrosis Patients

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Achievements:

As a first step, we read three articles related to receiving the respiratory signal, and we decided to go with the Electronic Stethoscope.

We had a meeting with Ziv (Responsible for the Hardware components) and we discussed the opportunity for ordering an USB 6+1 Mic Array for providing more accuracy while detecting the exact location of the crackle sound.

In the end, we decided to order the Electronic Stethoscope and let the Mic Array be as an enhancement tool as needed.

Along with we sent a request for Tal-Hashomer hospital to get an official confirmation for getting a data set of respiratory sounds for their Cystic Fibrosis patients.

We opened a shared GitHub repository RLC-S.

We chose Python to be our environment work and completed a "Hello World" task, added this work on our GitHub repository.

Related to the audio editor, as we mentioned in our first report we preferred to go with the WavePad, but after we got familiar with it and read some articles about the electronic stethoscope, we are confused which audio processing software packages to use to fit more the step after receiving the signal using the Electronic Stethoscope.

the suggested packages are:

- Audacity
- Twisted Wave
- Adobe Audition

To get a clear working schedule we chose to go with Monday app based on Scrum Methodology.
We set the tasks that we think should be done through this year and which team member is doing each task also share it with Ariel.
We had a correspondence with Yuval(our advisor) who sends us relevant sources of information that we need to learn, share him the work progress updates.

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Reports of the project

Name	Owner	Status	Timeline - Start	Timeline - End	Priority
First Report	va hassan, Janan Awa	Done	2019-05-05	2019-05-07	Medium
Git Respiratory	akiva hassan	Done	2019-06-06	2019-06-07	Medium
HelloWorld Python enviroment	Janan Awawdy	Done	2019-06-13	2019-06-13	Medium
Mini-report	va hassan, Janan Awa	Done	2019-06-14	2019-06-17	Medium
First Presentation	va hassan, Janan Awa	Working on it	2019-06-25	2019-06-27	High
Final Report	va hassan, Janan Awa	Later	2019-07-07	2019-07-10	High

Correspondence with Yuval(the advisor)

Name	Owner	Status	Timeline - Start	Timeline - End	Priority
קבלת אישור מביתי החולים לקבל מידע על החולים	va hassan, Janan Awa	Stuck	2019-05-31	2019-05-31	High

Getting the received signal

Name	Owner	Status	Timeline - Start	Timeline - End	Priority
קריאת שלושת המאמרים בנוגע לקליטת האות	akiva hassan	Done	2019-05-26	2019-05-31	High
בדיקת והזמנת רכיבים מתאמים לקליטת האות	Janan Awawdy	Done	2019-06-04	2019-06-07	Critical
פגישה עם זיו (אחראי חומרה)	an Awawdy, akiva has	Done	2019-05-31	2019-06-03	Critical
ניסוי ראשוני של הרכבים לקליטת האות	akiva hassan	Stuck	2019-06-09	2019-06-10	High
פגישת סיכום שלב עם אריאל ויובל	va hassan, Janan Awa	Working on it	2019-06-11	2019-06-15	High

Exams period

Name	Owner	Status	Timeline - Start	Timeline - End	Priority
תקופת מבחנים	an Awawdy, akiva has	Working on it	2019-06-21	2019-08-20	Critical

Signal Processing

Name	Owner	Status	Timeline - Start	Timeline - End	Priority
למידת תוכנת ה wavepad לעומק	akiva hassan	Later	2019-09-01	2019-09-07	
למידת ספריות ה python לעיבוד אותות	Janan Awawdy	Later	2019-09-01	2019-09-07	High
לקשר בין שתי התוכנות	va hassan, Janan Awa	Later	2019-09-08	2019-09-11	High
עיבוד אות ראשוני למטרת זיהוי חרחור	va hassan, Janan Awa	Later	2019-09-12	2019-10-11	Critical
סיכום הממצאים עד כה והכנת למוצר הראשוני	va hassan, Janan Awa	Later	2019-10-13	2019-10-17	Critical
פגישת סיכום שלב עם אריאל ויובל	va hassan, Janan Awa	Later	2019-10-27	2019-11-01	High

Find An algorithm for an acuurate crackle detection(Ariel suggestion)

Name	Owner	Status	Timeline - Start	Timeline - End	Priority
חיפוש מקורות מידע לגבי טכניקה לדיוק מיקום חרחור	akiva hassan	Later	2019-10-13	2019-10-27	Critical
פגישת סיכום שלב עם אריאל ויובל	va hassan, Janan Awa	Later	2019-10-17	2019-10-19	High

Primary Product

Name	Owner	Status	Timeline - Start	Timeline - End	Priority
בנית מוצר ראשוני ישים	va hassan, Janan Awa	Later	2019-11-02	2019-11-24	Critical

Testing the Primary product

Name	Owner	Status	Timeline - Start	Timeline - End	Priority
בדיקת מוצר ראשוני מול חולים	va hassan, Janan Awa	Later	2020-01-01	2020-01-30	High
הסקת מסקנות לגבי עדכונים במוצר	va hassan, Janan Awa	Later	2020-01-01	2020-01-30	High
פגישת סיכום שלב עם אריאל ויובל	va hassan, Janan Awa	Later	2020-01-31	2020-02-05	High

Enhancments for more Accuracy

Name	Owner	Status	Timeline - Start	Timeline - End	Priority
בדיקת אפשרות לשיפור האלגוריתמים בעזרת ML		Later			
התייעצות עם מרצים מהתחום		Later			
פגישת סיכום שלב עם אריאל ויובל		Later			