Thesis Title: **A** Low Resource End-To-End Speech Recognition Model

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# **Progress Report:**

The major aspects of my research have including a pilot study and a language model for Okrika language has been completed so far in the first three years of my studentship. While the first year was focused on reviewing relevant speech processing literature and defining a technical problem space, the second year reviewed various methodologies and techniques in the problem space. The third year up to the 20th of October, 2017 saw the realisation of the research aims and objectives, as well as the design methodology.

The method majorly implements Recurrent Neural Networks as can be applied to modelling end to end speech recognition systems and language models and how such models can enhance Speech recognition in low resource constraints. So far, an article based on the pilot study was sent publication while a second paper detailing language model implementation results also sent for publication. Feedback from peer reviewers from the papers caused me to change the direction of my research significantly, resulting in further development of end-to-end recognition, this time with deep scattering networks. This has so far given preliminary result to enable me commence my write up which I started to do so in October, 2018. The final thesis will be submitted by December of 2019. A Gantt chart showing the progress plan of my research write-up for the academic year 2017-2018 is outlined below.

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| **Deep Neural Network Techniques for Low Resource Speech Recognition** | | | | | | | | | | | | | | |
| **NO** | **MILESTONE** | **ACADEMIC SESSION 2018-2019** | | | | | | | | | | | | |
|  | | ***December*** | ***January*** | ***February*** | ***March*** | ***April*** | ***May*** | ***June*** | ***July*** | ***August*** | ***Septeemb*** | ***October*** | ***November*** | ***December*** |
| **1** | Introduction and Literature review |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **2** | RNN Chapter |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **3** | Deep Convolutional Networks |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **4** | GRU- Language Model |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **5** | Deep speech-DCN Speech model |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **6** | Discussion & Conclusion. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **7** | Future Direction Chapter. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **8** | Final Correction and submission |  |  |  |  |  |  |  |  |  |  |  |  |  |

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03-12-2018